

Draft General Management Plan and Environmental Impact Statement (GMP/EIS)

Kalaupapa National Historical Park

Kalawao County, Hawai'i

Kalaupapa National Historical Park (NHP) was established on December 22, 1980 (P.L. 96-565). It is administered by the National Park Service (NPS) through cooperative agreements and a lease with State of Hawai'i agencies and others. Kalaupapa NHP has never had a formal general management plan, and the unit needs guidance to address its many management and operational issues. These issues include the expected shift from co-management with the State of Hawai'i Department of Health (DOH) to a future when the DOH and the living patient community are no longer at Kalaupapa. Other major issues include resource management and visitor use and access.

This draft GMP/EIS examines four possible management strategies, called "alternatives," and the impacts of implementing these alternatives on Kalaupapa NHP. They comply with NPS planning requirements and respond to issues identified during the scoping process. Alternative C is the NPS's preferred alternative.

Alternative A is the no-action alternative and assumes that programming, facilities, staffing, and funding would generally continue at their current levels to protect the values of Kalaupapa NHP in the near term. Cooperative agreements with agencies and organizations and the lease agreement with DHHL would continue. Alternative A does not provide long-term guidance after the DOH departs Kalaupapa.

Alternative B focuses on maintaining Kalaupapa's spirit and character through limiting visitation. Alternative B would provide future guidance for managing Kalaupapa once the DOH leaves. It would maintain most of the rules and regulations that currently exist today, including limiting visitation to 100 people per day and current visitor age restrictions. Visitor use would be highly structured, though limited opportunities would exist for public visitation and

overnight use. The NPS would develop an extensive outreach program to share Kalaupapa's history with a wide audience at off-site locations.

Alternative C is the preferred alternative. It emphasizes stewardship of Kalaupapa's lands in collaboration with the park's many partners. Kalaupapa's diverse resources would be managed from mauka to makai (mountain top to the coast line) to protect and maintain their character and historical significance. Through hands-on stewardship activities, service and volunteer work groups would have meaningful learning experiences, while contributing to the long-term preservation of Kalaupapa's resources. Visitation by the general public would be supported, provided, and integrated into park management. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap while continuing to limit the number of visitors per day through new mechanisms.

Alternative D focuses on personal connections to Kalaupapa through visitation by the general public. Resources would be managed for long-term preservation through NPS-led programs throughout the park. This alternative focuses on learning about Kalaupapa through direct experience, exploration, and immersion in the historic setting. It offers visitors the greatest opportunities to explore areas of Kalaupapa on their own. Visitor regulations would be similar to Alternative C.

This document includes a detailed description of park resources affected by the alternatives; the alternatives; the projected environmental consequences of the alternatives; and the results of public involvement and consultation.

Please refer to "How to Use This Document" on the following page for comment procedures and submittal methods and addresses. This draft GMP/EIS has been distributed to agencies, organizations, and individuals for review and comment. The public comment period will extend 60 days from the date the Environmental Protection Agency's (EPA) notice of filing and release of the draft GMP/EIS is published in the *Federal Register*.

Prepared by United States Department of the Interior: National Park Service



Looking south on Mission Street in Kalaupapa Settlement towards the pali cliffs. NPS photo.

Kalaupapa National Historical Park

Draft General Management Plan and Environmental Impact Statement

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United States Department of the Interior
National Park Service
Pacific West Region
Park Planning and Environmental Compliance



Mother Marianne and the Sisters of Saint Francis with Bishop Home girls in 1890. Photo courtesy of Sisters of Saint Francis.

Letter from the Superintendent

Dear Friends,

We are pleased to present the Draft General Management Plan and Environmental Impact Statement for Kalaupapa National Historical Park for your review and comment. This draft plan presents the proposed management actions for Kalaupapa National Historical Park’s long-term management and progression over the next 15–20 years. We invite you to review the draft, share your thoughts with us, and let us know how it addresses your aspirations for the future of the historical park.

This draft general management plan explores a range of ideas, methods, and concepts for managing Kalaupapa National Historical Park. This document describes four different alternative strategies for protecting and managing Kalaupapa National Historical Park. It also contains an analysis of the impacts and consequences of implementing each of these alternative strategies. In addition to the planning sections, this document contains a summary of the history of Kalaupapa and descriptions of the national historical park’s resources. Alternative C has been proposed as the National Park Service’s preferred alternative, and this set of actions and programs is intended to become the general management plan for Kalaupapa.

Your involvement in the planning process over the past three years has been a critical asset in the creation of this document and associated management strategies. You will find that many of your ideas from the public workshops and subsequent written comments as well as mana‘o from the resident patients are represented in the management alternatives and in the National Park Service’s preferred alternative for Kalaupapa.

We invite you to take this opportunity to help shape the future of the historical park by sending us your comments. The “How to Use this Document” section provides instructions about how to comment on this document. Your involvement will assist the National Park Service to achieve its mission at Kalaupapa.

Mahalo for your support and interest in the long-term management of this sacred place,

Erika Stein Espaniola
Superintendent
Kalaupapa National Historical Park



Top: Eastern coast of the Kalaupapa peninsula with the Wai‘ale‘ia Valley in the background. NPS photo. Bottom: Signpost at Judd Park in Kalawao. Photo by Rob Ratkowski, NPS.

How to Use This Document

This draft final general management plan and environmental impact statement (GMP/EIS) for Kalaupapa National Historical Park (NHP) is presented in six chapters and appendices, consistent with federal requirements that guide the preparation of an EIS.

The **Summary** at the beginning of the document provides a condensed version of this document.

Chapter 1: Introduction sets the stage for the draft GMP/EIS by describing Kalaupapa National Historical Park and its history, the purpose and need for the plan, the issues that are addressed in the GMP/EIS, and the planning process. It also describes the resources and values at stake in the planning process, the relationship of this GMP/EIS to other plans in the region, and next steps and implementation of the plan.

Chapter 2: Foundation for Planning and Management includes the “foundation document” which describes the NHP’s purpose, significance, interpretive themes, and fundamental resources and values. It also describes the special Congressional designations, authorizations, mandates, and legal and policy constraints and guidance.

Chapter 3: Alternatives describes four management alternatives, including the National Park Service’s preferred alternative. The alternatives represent reasonable sets of management directions consistent with National Park Service policy and applicable laws and planning requirements. This chapter includes two useful charts: “Alternatives Comparison Table” and “Summary of Impacts.”

Chapter 4: Affected Environment provides detailed information about Kalaupapa NHP, focusing on those resources that could be affected by the decisions contained in the individual management alternatives.

Chapter 5: Environmental Consequences describes the impacts of each alternative on resources within the NHP.



Kalaupapa residence in the Kamehameha Street neighborhood. NPS photo.

Chapter 6: Public Involvement summarizes public involvement and the consultation process that was an integral part of the creation of this draft GMP/EIS. This chapter also summarizes public comments received by the NPS during scoping and draft alternatives public review.

The **Appendices** provide more detailed information related to the plan, including pertinent legislation, list of buildings at Kalaupapa, Department of Health rules and regulations for visitors, analysis of boundary adjustment and land protection, glossary, selected bibliography, and a list of the preparers and consultants for the plan.

All maps and figures are placed within the text of the applicable chapters. In many cases, decisions or other discussions contained in this draft GMP/EIS refer directly to maps and figures. In fact, many decisions themselves are “map-based.” The reader must rely on the text, maps, and figures taken together to fully understand the proposed decisions described in this draft GMP/EIS.

How to Comment on This Document

The public comment period for this draft GMP/EIS will extend 60 days from the date the EPA notice of filing and release of the draft GMP/EIS is published in the *Federal Register*. We encourage you to review the document and welcome your comments. During the comment period, comments may be submitted using several methods:

- We prefer that readers submit comments online at the Kalaupapa National Historical Park GMP/EIS project website: <http://parkplanning.nps.gov/kala>
- A postage paid comment form is included in the Kalaupapa National Historical Park GMP/EIS Executive Summary Newsletter Number 4. You may use this form and attach additional pages as necessary.
- Letters may be sent to:
Superintendent, attn: Kalaupapa NHP GMP/EIS
7 Puahi Street
Kalaupapa, HI 96742
- E-mails may be sent to: KALA_GMP@nps.gov

In addition, comments may be made in person at one or more of the upcoming public open houses. The specific dates and times for these meetings will be announced in local newspapers, in the draft GMP/EIS newsletter, and on the Kalaupapa NHP website and Kalaupapa NHP GMP/EIS project website. A limited number of additional paper and digital copies of this report are available from the above mailing address. The full report is available for viewing and downloading at the Kalaupapa NHP GMP/EIS project website. This document is also available for viewing at public libraries throughout Hawai’i.

Your comments and contributions have been an invaluable component of this planning process so far, and we look forward to your comments on this draft GMP/EIS.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.



Top: The Kalaupapa School in 1904 with teacher John Taylor Unea, Sr., a member of the Kanaana Hou Church. Photo courtesy of IDEA Archives. Bottom: Kalaupapa women playing tennis, date unknown. Kalaupapa Historical Society Photo Collection.

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The Kalaupapa peninsula from the pali trail. Photo by T. Scott Williams, NPS.

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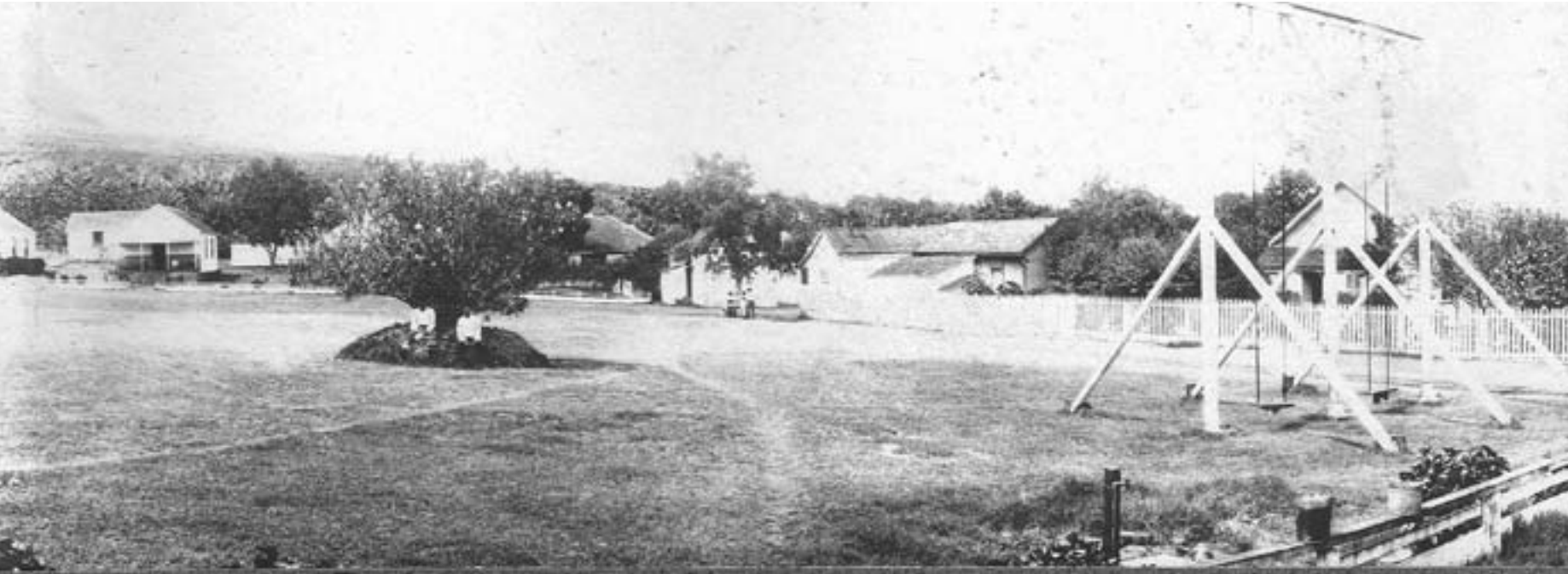
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Hawaiian Words
Used in the Text

ahupua‘a: A major land division usually extending from the uplands to the sea, so-called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua‘a), or because a pig or some other tribute was laid on the altar as a tax to the chief

‘āina: The living earth

‘āina o ka ‘eha‘eha: Land of Suffering

ala: Anciently a footpath, trail, way; now also road or highway

‘alā: Waterworn stones used as stepping stones or to mark a footpath; also called pa‘alā

ali‘i: Hawaiian sacred chiefs and chiefesses; the nobility

aloha: Sacred breath of life, love, compassion

hale: house or shelter

haole: Caucasian, foreigner

heiau: Hawaiian temple platform. There were numerous temples for many different purposes such as agricultural prosperity, fishing, surfing, the hula, etc.

hoa‘āina: Native tenants; in the context of this document, used to refer to those people living on the Makanalua peninsula prior to the arrival of the first patient settlers on January 12, 1866 and/or those who had kuleana land and familial ties to the peninsula even though they might no longer have

lived on their kuleana plots by the time the settlement was established

hula: Traditional form of dance

‘ili: A subdivision within an ahupua‘a, administered by the chief controlling the ahupua‘a

kahuna lā‘au lapa‘au: Herbal experts

kalo: Taro (*Colocasia esculenta*)

kama‘āina: Native-born Hawaiian; person familiar from childhood with any locality; in modern usage it refers to all long-time residents

kapu: Taboo; sacred; no trespassing

ko‘a: Fishing shrine

koa: An endemic tree (*Acacia koa*), common in the dry forests, the wood of which was prized for canoes and other artifacts

ko‘olau: Windward

kōkua: “Pulling with the back,” pitching in to help, volunteering. The use of the term “kōkua” in relation to Kalaupapa’s history has always meant an unpaid helper, often a family member, who helps out of true aloha for the patient with no thought of compensation in return.

kona: Leeward

konohiki: Land manager of an ahupua‘a; a lesser chief

kula: Plain, field, open country; source

kuleana: Responsibility, implied reciprocity

kupuna: Grandparent, ancestor, relative of grandparents’ generation; kūpuna is the plural form

lā‘au lapa‘au: Traditional Hawaiian herbal medicine

lele: A detached piece of land belonging to one ‘ili but located in another ‘ili

Molokai

The island name Molokai is of uncertain and ancient origin. Its meaning and spelling, with or without the ‘okina, have been debated for years and it will probably never be answered definitively. The literal meaning of Molokai refers to the «molo» (rough churning motion) of the «kai» (ocean) of the Molokai Channel which has a reputation for being very rough, choppy and treacherous.

Revered kūpuna, Harriet Ne of Pelekunu Valley and Mary Kawena Pukui, Hawaiian culture and language expert, believed the original pronunciation is Molokai without the ‘okina. They translated Molokai as “the gathering of the ocean waters” in reference to the different ways the ocean buffets the Molokai shores on different sides of the island (Ne to Ayau in Cronin 1992). Following their advice, Molokai is spelled without the ‘okina in this document, except where the ‘okina is used in quotations and in the Foundation Statement where the translator chose to use the ‘okina. It should be noted that it is not our intent to give precedence for one spelling over the other. It is merely an editorial choice.

lo‘i kalo: Wetland taro

lua: Pit, indentation, hole

luna: Supervisor

mahalo: Thanks, gratitude

Māhele: Literally, “a division, or a portion.” The Great Māhele of 1848 was a division of lands between the king, chiefs, and government that established landownership on a Western-style, fee-simple basis. From this single act, the entire social, economic, and political order of ancient Hawai‘i was altered forever.

malihini: Newcomers, guests

makai: Toward the sea; at the coast

maka‘āinana: People in general; citizens; commoners

mālama: Care for, preserve

mālama i ka‘āina: Care for the land

mana: Spiritual power, derived from the ancient gods, contained in varying degrees in all life forms and inanimate objects

mauka: Towards the interior, or mountains; inland

mea ‘ai: Food

‘ohana: Family, relative, kin group

‘ōhi‘a: An endemic tree (*Metrosideros polymorpha*) dominant in the west forests. The wood was used for temple images.

Hawaiian Words Used In The Text

‘opihi: Several species of limpets (*Cellana* sp.)

pali: A cliff or precipice

pa‘i ‘ai: Hard, undiluted poi

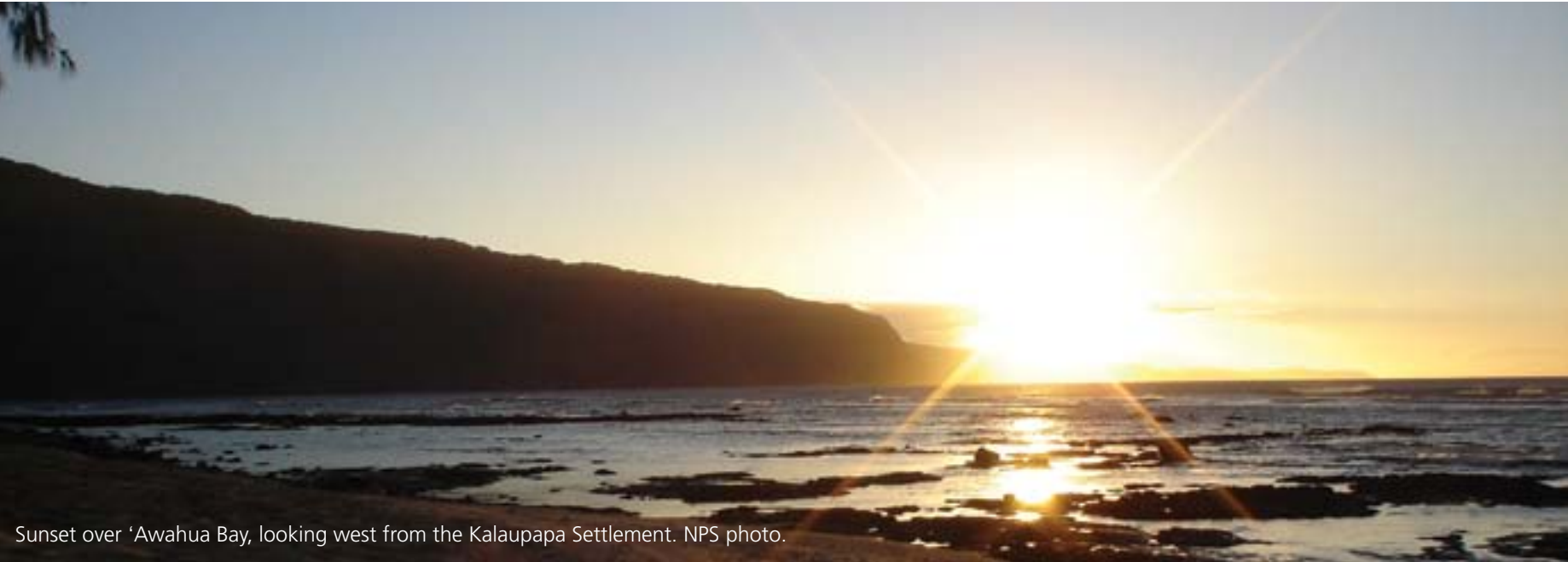
poi: Hawaiian staple food made from cooked and mashed taro mixed with water

pu‘u: Any kind of protuberance; hill, peak, mound, bulge

‘uala: Sweet potato (*Ipomoea batatas*)

wao **akua:** upper mountain regions where spirits dwell

wahi pana: a legendary of storied place, sometimes considered sacred



Sunset over ‘Awahua Bay, looking west from the Kalaupapa Settlement. NPS photo.

Acronyms

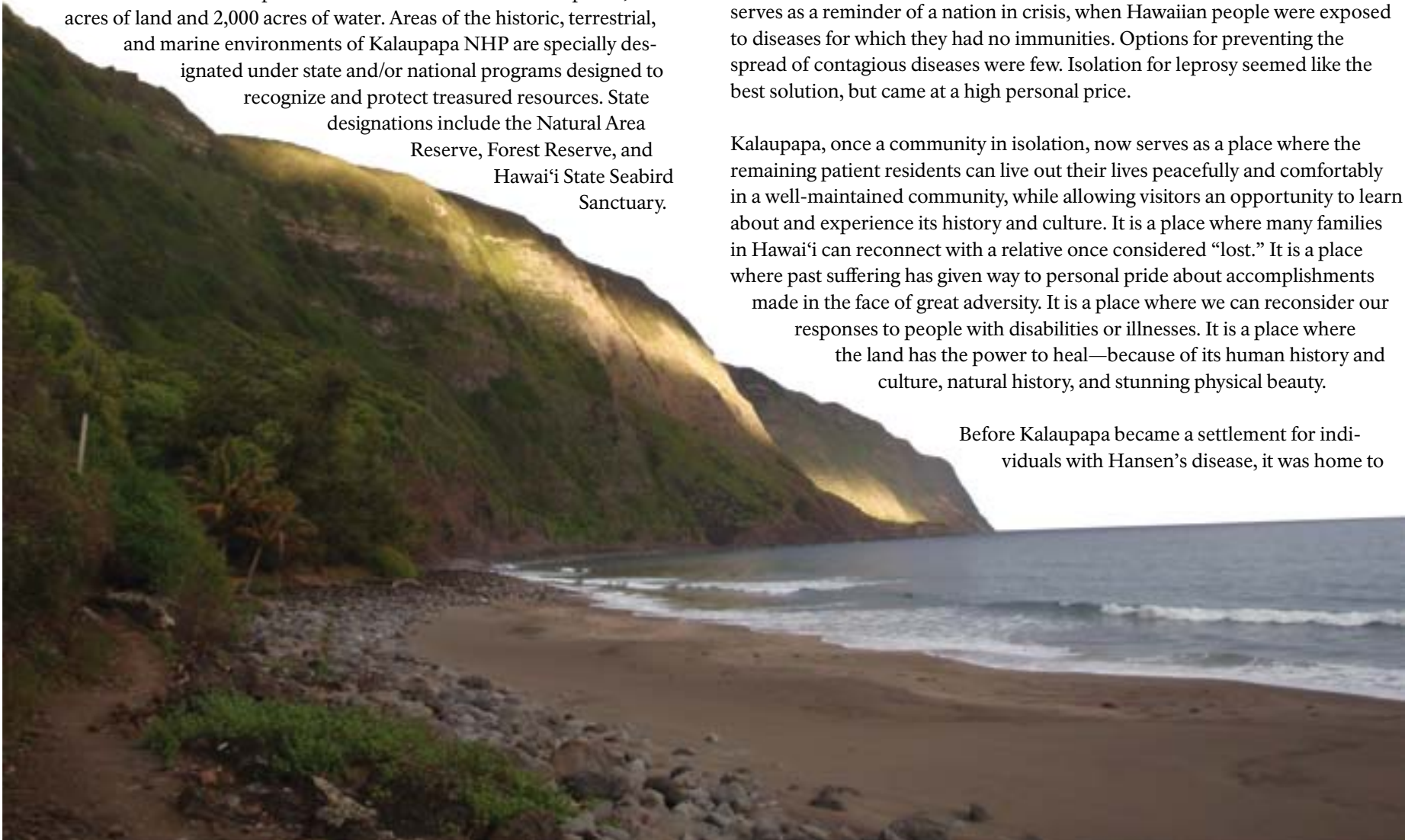
ACHP	Advisory Council on Historic Preservation
DBEDT	State of Hawai‘i, Department of Business, Economic Development and Tourism
DHHL	State of Hawai‘i, Department of Hawaiian Home Lands
DLNR	State of Hawai‘i, Department of Land and Natural Resources
DOFAW	State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife
DOH	State of Hawai‘i, Department of Health
DOT	State of Hawai‘i, Department of Transportation
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FTE	Full-time Equivalent
GMP	General Management Plan
HUD	U.S. Department of Housing and Urban Development
LCS	List of Classified Structures
MCPD	Maui County Planning Department
NAR	Natural Area Reserve
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHP	National Historical Park
NNL	National Natural Landmark
NPS	National Park Service
PEPC	NPS Planning, Environment, and Public Comment website
RAWS	Remote Automatic Weather Stations, National Interagency Fire Center
SHPD	State of Hawai‘i, State Historic Preservation Division
USCB	U.S. Census Bureau
USGS	U.S. Geological Survey
WSR	Wild and Scenic River



Similar views of the Kalaupapa settlement c.1900 and in 2011. Top photo courtesy of Hawai'i State Archives. Bottom photo by T. Scott Williams, NPS.

Executive Summary

Kalaupapa National Historical Park (NHP) was designated as a unit of the national park system on December 22, 1980. It is located in the State of Hawai‘i on the island of Molokai. The park’s authorized boundaries encompass 8,725 acres of land and 2,000 acres of water. Areas of the historic, terrestrial, and marine environments of Kalaupapa NHP are specially designated under state and/or national programs designed to recognize and protect treasured resources. State designations include the Natural Area Reserve, Forest Reserve, and Hawai‘i State Seabird Sanctuary.



Federal designations include the National Historic Landmark and National Natural Landmark.

The primary story being told at Kalaupapa is the forced isolation from 1866 until 1969 of people from Hawai‘i afflicted with Hansen’s disease (leprosy), who were segregated on the remote northern Kalaupapa peninsula. Kalaupapa serves as a reminder of a nation in crisis, when Hawaiian people were exposed to diseases for which they had no immunities. Options for preventing the spread of contagious diseases were few. Isolation for leprosy seemed like the best solution, but came at a high personal price.

Kalaupapa, once a community in isolation, now serves as a place where the remaining patient residents can live out their lives peacefully and comfortably in a well-maintained community, while allowing visitors an opportunity to learn about and experience its history and culture. It is a place where many families in Hawai‘i can reconnect with a relative once considered “lost.” It is a place where past suffering has given way to personal pride about accomplishments made in the face of great adversity. It is a place where we can reconsider our responses to people with disabilities or illnesses. It is a place where the land has the power to heal—because of its human history and culture, natural history, and stunning physical beauty.

Before Kalaupapa became a settlement for individuals with Hansen’s disease, it was home to

Dramatic light on the cliffs at Nihoa as a storm clears. Photo by T. Scott Williams, NPS.

native Hawaiians, who lived within what are now the boundaries of Kalaupapa NHP for more than 900 years. Structural remnants built and used over centuries are everywhere within the park and illustrate how early native Hawaiians lived their daily lives in this majestic place. Today, Kalaupapa’s archeological resources make the park one of the richest and most valuable archeological complexes in Hawai‘i.

Kalaupapa National Historical Park differs significantly from most other national parks in that nearly all of the lands, marine areas, and improvements within the authorized boundary are in non-federal ownership and are managed through agreements between the National Park Service and other parties. Land within the park boundaries is owned by the State of Hawai‘i, departments of Land and Natural Resources (DLNR), Transportation (DOT), and Hawaiian Home Lands (DHHL), as well as a small private holding at the top of the cliffs. The park also maintains 20-year cooperative agreements with religious organizations, including the Roman Catholic Church and the Hawai‘i Conference Foundation of the United Church of Christ. The National Park Service owns only 23 acres that include two historic houses and four outbuildings that surround the Molokai Light Station.

Kalaupapa NHP is in Kalawao County, a unique jurisdiction designed specifically for the management of the settlement area as a residential medical facility. The county boundary is identical to the legal settlement boundary and is governed by the director of the State of Hawai‘i’s Department of Health (DOH). The director may adopt such rules and regulations as considered necessary to manage the community.

The purpose of this general management plan and environmental impact statement (GMP/EIS) is to articulate a vision and overall management philosophy for Kalaupapa NHP that will guide long-term decision-making by current and future managers. This document presents management strategies for resource protection and preservation, education and interpretation, visitor use and facilities, land protection and boundaries, and long-term operations and management of Kalaupapa NHP.

Planning for Kalaupapa NHP

Public involvement and consultation efforts were ongoing throughout the process of preparing this draft GMP/EIS. Public involvement methods included public meetings and workshops, invited presentations at partner and special interest group meetings, discussions at Kalaupapa NHP Advisory Commission meetings, news releases, newsletter mailings, Federal Register notices, and website postings.

The public scoping period was the first opportunity for public comment and was held between March 11, 2009 and July 15, 2009. The NPS held 12 public workshops on the islands of Molokai, O‘ahu, Maui, Kaua‘i, and Hawai‘i. Comments were received from more than 450 individuals or organizations. The scoping comments assisted the planning team in identifying the range of issues to address in the GMP and preliminary ideas for the development of alternatives.

Public review of the preliminary alternatives was an additional step in the planning process. It was held between May 16, 2011 and July 16, 2011. The primary purpose of involving the public at the time was to understand the public’s concerns and preferences with regard to the preliminary alternatives and to assist the planning team in refining the preliminary alternatives and identifying a preferred alternative. Seven public open houses were held on the islands of Molokai, O‘ahu, and Maui.

Over 200 individuals or organizations provided comments either in public open houses or in writing.

An interdisciplinary planning team was composed of Kalaupapa National Historical Park staff, subject matter experts associated with the Hansen’s disease patient resident community, Pacific West Regional Office planners and specialists, and representatives of the State of Hawai‘i partner agencies. NPS staff regularly updated the state agencies and partners at every milestone for this planning effort.

Issues Addressed

Issues were identified during scoping and were addressed in the alternatives for this draft GMP/EIS. For a complete list of issues and descriptions, please consult the “Planning Issues and Concerns” section in Chapter 1 of the draft GMP/EIS.

The five major issues addressed are:

1. Fundamental Changes in Park Purpose, Management, and Operations: This issue includes a variety of topics, such as addressing near-term management while there is a living patient community and active Department of Health operations at Kalaupapa, as well as long-term management when the DOH will no longer have a purpose for being at Kalaupapa. While resource management, visitor use, and operational issues are connected, the GMP needs to determine which issues can be addressed regardless of time period and which issues need to be addressed with both short-term and long-term guidance.
2. Partnerships: This issue addresses cooperative relationships with the state agencies, religious institutions, nonprofit organizations, and many new partnership opportunities. Long-term management of Kalaupapa will require a collaborative approach to resource stewardship, education and interpretation, and operations.
3. Resources: Kalaupapa NHP contains a vast array of cultural and natural resources that contribute to the national significance of the park. This issue concerns the long-term protection of fundamental resources and values related to Kalaupapa NHP, including archeological, ethnographic, and cultural landscape resources; historic buildings and structures; museum collections; and marine and terrestrial resources.
4. Historic Structures: Kalaupapa contains roughly 250 historic buildings within the boundary of the National Historic Landmark. Identifying management strategies for the long-term preservation of Kalaupapa’s historic structures is a key issue facing the park. Buildings and facilities for interpretation, education, day use, overnight use, orientation, and operations are considered.
5. Visitor Use: Rules and regulations that govern access and visitation to Kalaupapa are in place to ensure the needs and privacy of the patient community. The reasons for visitor regulations will change once there is no longer a living patient community at Kalaupapa. This issue includes a variety of topics, such as identifying the direction of interpretive and education programs, addressing the types and levels of compatible uses, addressing access and transportation, and guiding the development of commercial use activities.

Alternatives

Context for the Plan

The management alternatives being considered present a vision and direction for Kalaupapa National Historical Park.

The context within which alternatives are proposed is affected by the missions of the NPS and State of Hawai‘i partner agencies, and a variety of other partners associated with Kalaupapa NHP. These partners include the State of Hawai‘i departments, religious institutions operating at Kalaupapa, and other public and private entities. Decisions in this general management plan will affect the partners, and the NPS has actively engaged the State of Hawai‘i departments in this planning process. In addition, management decisions about agreements, resource preservation and use, homesteading, and visitor use made by any of the above partners would impact the management of Kalaupapa NHP.

Actions Common to All Alternatives

Several actions would be common to all alternatives (alternatives A, B, C, and D). These include:

- Hansen’s Disease Patients and Department of Health Operations*
- The National Park Service is committed to fulfilling its responsibilities under Public Law 96-565 with respect to providing “a well-maintained community in which the Kalaupapa leprosy patients are guaranteed that they may remain at Kalaupapa for as long as they wish; to protect the current lifestyle of these patients and their individual privacy. . . .”
 - As long as patients live at Kalaupapa, the National Park Service would manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the present character of the community.

Management of Specific Areas Within Kalaupapa NHP

- Kalawao: Now and into the future, Kalawao would be preserved for its historical values and as the first settlement for Hansen’s disease patients on the Kalaupapa peninsula.



Hāpai Pōhaku opening ceremony to repair the rock walls at Siloama Church, 2011. NPS photo.

- Kalaupapa Settlement: The NPS would strive to retain historic structures and landscape features that contribute to the National Historic Landmark in Kalaupapa Settlement through stabilization to ensure significant deterioration is halted.
- Peninsula: The NPS would ensure the long term preservation of resources that relate to the Hansen’s disease era; the long history of native Hawaiian habitation and use; and terrestrial, geologic, and marine resources on the peninsula in the Kalaupapa, Makanalua, and Kalawao ahupua’a.
- Pālā’au State Park: The NPS would maintain the Kalaupapa Overlook in Pālā’au State Park in cooperation with DLNR including the wayside facilities, trailhead, and assisting with vegetation management to maintain the significant views to Kalaupapa. Visitors would continue to have free and unescorted access on the premises of Pālā’au State Park within the boundary of Kalaupapa NHP.
- Seabird Sanctuaries on ‘Ōkala and Huelo Islands: Access to the islands would be limited to scientific and resource management activities, and public entry and landings would continue to be prohibited per state regulations.
- Waikolu Valley and Pu’u Ali’i Natural Area Reserve: These areas would continue to be managed primarily for their outstanding resource values. Access would continue to be limited. Hunting would continue to be permitted per State of Hawai’i hunting regulations.
- Molokai Forest Reserve: Existing general management practices by the NPS and DLNR focused on resource protection and monitoring, as well as hunting and gathering, would continue.

Management Structure, Partnerships, and Agreements

- Establish and maintain partnerships and projects with state and local agencies, adjacent landowners, and organizations for resource protection, interpretation, and visitor use.
- Work collaboratively with the State of Hawai’i DOH, DHHL, DLNR, and DOT to determine governance of Kalaupapa and Kalawao County when DOH departs.
- Continue the cooperative agreements with DOH, DLNR, DOT, and the lease with DHHL.
- In the long term, continue to have use of buildings and facilities at Kalau-papa. Ownership of the buildings would transfer from DOH to DHHL once the DOH departs Kalaupapa.



Along the pali trail, connecting the Kalauapapa Settlement to topside Molokai. NPS photo.

- Continue the existing structure of DOH and NPS management of visitor use and facilities with the ongoing transfer of DOH responsibilities to NPS. In the long term, the NPS would assume full management of visitor access, activities, and overall management of Kalaupapa and its resources.

Cultural Resources

- Continue to conduct cultural resource projects, inventories, and interpretation related to cultural resources. This includes continuing to stabilize and preserve historic buildings, structures, and landscape features that contribute to the National Historic Landmark designation as funding allows.

Natural Resources

- Continue to implement natural resource management priorities including: research, inventory, monitoring, feral animal control, fencing, rare species stabilization, and incipient alien species removal.

Fishing, Hunting, and Gathering

- Continue to apply NPS regulations in the marine area of the park.
- Fishing, hunting, and gathering on the Kalaupapa peninsula would continue to be managed according to State of Hawai’i and Kalawao County laws and regulations.
- Public hunting is allowed per DLNR regulations in the Molokai Forest Reserve area within the park and Pu’u Ali’i Natural Area Reserve.
- Pursuant to DOH regulations, patients and other residents of Kalaupapa are currently allowed to collect salt and gather plant resources.

Wild and Scenic River

- Recommend the addition of culture and history as outstandingly remarkable values for Waikolu Stream in the National Rivers Inventory.

Interpretation and Education

- Continue to grow the park's interpretation and education division, developing limited interpretive programs and activities.

Visitor Use and Experience

- Existing DOH and patient resident rules would remain in place for all the alternatives until DOH leaves Kalaupapa or the DOH and patient advisory council direct changes to the existing rules.

Commercial Visitor Services

- Maintain the right of first refusal for revenue-generating visitor services for patient residents and the right of second refusal for native Hawaiians.
- Continue to support the concession and commercial uses in the near term operated by patient residents.

Sustainable Practices and Responses to Climate Change

- Strive to be energy independent by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices.

Access and Transportation Facilities

- Continue existing structure of land, air, and sea access.
- New forms of access would not be allowed; and new routes, such as roads, would not be constructed.

Operational Facilities

- New construction within the peninsula would only be allowed if rehabilitation of existing structures is not feasible.

Cost Estimates

- Cost estimates for all alternatives are not for budgetary purposes; they are only intended to show a relative comparison of costs among the alternatives.
- Cost estimates are in 2012 dollars. Gross cost estimates include escalation factors such as location, remoteness, design contingencies, historic preservation, and overhead.
- The implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming.
- Some of the future long-term funding needed to implement various actions is anticipated to come from nonfederal partners.

Boundaries and Land Protection

- Continue to act on the enabling legislation direction to explore land donation or exchange with DHHL, DLNR, and other landowners during the life of the GMP.
- The findings of the Hawai’i Area Studies that fulfilled the direction of Public Law 105-355, Sec. 511 would continue to be valid, and Congress could decide to act on the study’s findings.



Kalaupapa peninsula shoreline. NPS photo.

Management Zones

Alternatives B, C, and D assign management zones to areas of Kalaupapa NHP. Management zoning is the method used by the NPS to identify and describe the appropriate variety of resource conditions and visitor experiences to be achieved and maintained in the different areas of a park. Zoning is generally a two-step process: (1) identify a set of potentially appropriate management zones, and (2) allocate those zones to geographic locations throughout the park. The four management zones define and spatially apply goals and objectives for resource management, levels of development, and different types of potential visitor experiences.

Summary of Management Zones

Integrated Resource Management Zone

This zone emphasizes the interconnectedness of nature and culture that is evident in people’s connection with the ‘āina at Kalaupapa. Characterized by integrated management of natural and cultural resources, this zone provides opportunities to understand the significance of Kalaupapa’s resources through a range of methods that would be complementary to the landscape. Access would be by escort only and through a special use permit to allow for research and protection activities. Facilities would be minimal and only allowed in support of resource protection, visitor use, and visitor safety. Facilities could include trails, unimproved roads, and fencing.

Engagement Zone

This zone would provide opportunities for visitors to experience Kalaupapa. Visitors would learn about the significance of Kalaupapa’s natural and cul-

tural resources through its stories. Opportunities would include escorted guided tours, unescorted and self-guided tours, an orientation film, cultural demonstrations, interpretive and stewardship programs, and spiritual reflection, as long as resources would not be degraded. Some historic structures would be rehabilitated for visitor services. Facilities could include a visitor center, waysides and kiosks, trails, roads, picnic, and group use areas. Universal access opportunities would be provided.

Operations Zone

This zone would consist mainly of operation and maintenance facilities for the park and its partners. Historic buildings and structures would be preserved, and some would be rehabilitated for operations. Visitor access would be controlled in certain locations and would generally be by escort only. Facilities would include those that are necessary for operations, for example the airport, harbor and pier, roads and parking, administrative offices, staff housing, maintenance facilities, warehouses and garages, utilities, and the DOH care facility. Both motorized and non-motorized access would continue, and universal access opportunities would be provided.

Wao Akua (Upland Forests) Zone

Based on the native Hawaiian land classification “wao akua” (place of the spirits), this zone includes the upland forests and follows the portion of the North Shore Cliffs National Natural Landmark within the park boundary. This zone would be managed primarily for its natural values, including the preservation or restoration of native ecosystems where practical. Significant cultural landscape features would be preserved alongside natural features. Access would be difficult due to steep slopes and would be restricted for safety. Activities could include traditional practices and research.



Kalaupapa peninsula. Photo by Jeffrey Mallin.

Range of Alternatives

This draft GMP/EIS presents four alternatives including the NPS’s preferred alternative for future management of Kalaupapa NHP. The alternatives, which are consistent with Kalaupapa NHP’s purpose, significance, and special mandates, present different ways to manage resources, visitor use, and facilities within Kalaupapa NHP. The four alternatives include alternative A (the “No-action Alternative” that proposes the continuation of current management), and three action alternatives: alternative B, alternative C (the NPS Preferred Alternative), and alternative D. The four alternatives vary by overarching concept, types and levels of visitor experience, resource management decisions, desired future conditions, and the application of management zones.

Alternative A: No-Action Alternative

Alternative A is the no-action alternative and assumes that programming, facilities, staffing, and funding would generally continue at their current levels to protect the values of Kalaupapa NHP in the near term. The NPS would continue to manage Kalaupapa NHP through cooperative agreements with agencies and organizations and the lease agreement with DHHL. Alternative A does not provide long-term guidance for park management after the DOH departs Kalaupapa.

There would be no management zoning guidance under alternative A since the park does not have a management zoning scheme.

Management guidance would continue according to legislation, state regulations, Kalawao County and patient resident rules and regulations, and NPS policies.

All actions as stated in the “Common to All Alternatives” section would apply to alternative A with the following exceptions:

Cultural Resources

Historic Structures and Cultural Landscapes

- Historic preservation treatments to protect historic structures on a case-by-case basis and as funding allows

Operations

Staffing

- Maintain the existing staffing level (40 base-funded)

Cost Estimates

Annual Operating Costs

- Maintain existing operating costs
- The total annual operating costs would be approximately \$4,230,000 per year.

One-time Costs

The majority of costs are for historic preservation treatments to Kalaupapa’s historic buildings and structures. Projects are identified under two different phases. The following project types would be included in each phase:

- Phase 1 projects are considered essential, total \$16,700,000, and include:
- stabilization of NPS managed NHL-contributing structures, features, and archeological sites;
 - life, health, and safety-related projects;
 - phase 1 improvements to failing electrical system;
 - rehabilitation of the Kalaupapa trail;
 - rehabilitation of essential historic buildings for maintenance and park operations;
 - and preservation of historic residences used for staff housing.

Phase 2 projects total \$7,830,000 and include:

- preservation and rehabilitation of historic buildings for visitor services, community use, maintenance, park offices, and staff housing;
- phase 2 improvements to electrical system;
- and repaving the road system.

NPS costs for Phases 1 and 2 would total \$24,530,000.

Gross cost estimates, including partnerships costs of \$990,000, would total \$25,520,000.

(Note: all costs are in 2012 dollars.)

Boundaries and Land Protection

No boundary proposal

Alternative B

Alternative B focuses on maintaining Kalaupapa’s spirit and character through limiting visitation to the park. The goal for this alternative would be similar to alternative A, but would provide future guidance for managing Kalaupapa once the DOH leaves. Alternative B would maintain most of the rules and regulations that currently exist today, including limiting visitation to 100 people per day and current age restrictions. Visitor use at Kalaupapa would be highly structured, though limited opportunities would exist for public visitation. The NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations.

This overview includes major actions and emphasis areas of alternative B. For a more detailed description of the actions in alternative B, see the “Alternative B” section of Chapter 3 of the draft GMP.

Management Structure, Partnerships, and Agreements

- Same as alternatives C and D.

Cultural and Natural Resources

- Similar to alternative C, however there would be less of an emphasis on partnerships, stewardship activities, or hands-on learning activities.

Hunting, Fishing, and Gathering

- Same as alternatives C and D.

Interpretation and Education

- Similar to alternative C, however focus most educational efforts offsite through extensive outreach efforts to allow people to learn about Kalaupapa without actually visiting the site. Interpretive and educational facilities, services, and opportunities at Kalaupapa NHP would be limited.

Visitor Use and Experience

Long-term Overall Guidance

- Focus on information and interpretation for the public offsite.

Number of Visitors: Long-term

- Maintain current cap for general public visitation—limited to 100 people per day at any one time. Visitation would be through tours managed by concessions and commercial use authorizations. More opportunities to visit Kalaupapa would be available on specific days, such as family days, for special events for people with ancestral connections to Kalaupapa.

Orientation: Long-term

- Require that all visitors receive an orientation to the park.

Access to and within Kalaupapa NHP: Long-term

- Similar to alternative C, however allow unescorted public access only in the Kalaupapa Settlement

Age Limit: Long-term

- Continue to prohibit visitation to Kalaupapa by children under the age of 16.

Overnight Use: Long-term

- Similar to alternative C, however overnight use would be limited.

Sustainable Practices and Responses to Climate Change

- Same as alternatives C and D.

Access and Transportation Facilities

Long-term Overall Guidance

- Maintain existing management of access and transportation facilities.

Operations

Staffing

- Maintain the existing staffing level (40 base-funded) and add 14 staff.

Cost Estimates

Annual Operating Costs

- Add approximately \$810,000 to the operating base for staffing.
- Add approximately \$885,000 for operations and maintenance costs related to capital investments.
- The total annual operating costs would be approximately \$5,925,000 per year.

One-time Costs

Specific projects and phasing of projects would be similar to alternative C, however alternative B costs would differ because there would be more emphasis on outreach and less emphasis on onsite visitation. The majority of costs are for historic preservation treatments to Kalaupapa’s historic buildings and structures.

Phase 1 projects total \$14,155,000

Phase 2 projects total \$16,850,000

Phase 3 projects total \$1,210,000

NPS costs for Phases 1, 2, and 3 would total: \$32,215,000

Gross cost estimates, including partnerships costs of \$4,435,000, would total \$36,650,000.

(Note: all costs are in 2012 dollars.)

Boundaries and Land Protection

Same as alternative C



Left: Holy Name Society, St. Francis Catholic Church, 1910s. Photo courtesy of Damien Museum.

Alternative C

Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa’s lands in collaboration with the park’s many partners. Kalaupapa’s diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. Through hands-on stewardship activities, service and volunteer work groups would have meaningful learning experiences, while contributing to the long-term preservation of Kalaupapa’s resources. Visitation by the general public would be supported, provided, and integrated into park management. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision, and removing the 100 person per day visitor cap while continuing to limit the number of visitors per day through new mechanisms.

This overview includes major actions and emphasis areas of the preferred alternative. For a more detailed description of the actions in alternative C, see the “Alternative C: Preferred Alternative” section of Chapter 3 of the draft GMP.

Management Structure, Partnerships, and Agreements

- Continue to collaborate with DOH and update the transition plan that would guide the turnover of management responsibilities for visitor use, historic structures and facilities, and operational responsibilities
- Develop a cooperative agreement with DHHL to define roles and responsibilities for the long-term care and use of the Kalaupapa Settlement and DHHL lands within the park boundary
- Recommend that homesteading not occur on lands within the park boundary owned by DHHL. If DHHL were to allow homesteading in the future, the NPS would recommend that such activity be limited and that the homesteaders be engaged in activities that support the purpose of the park.

Cultural Resources

- Emphasize cultural resource inventory, documentation, preservation, rehabilitation, and selective restoration of historic features.
- Collaborate with partners and service groups to ensure the long-term protection of historic features from the Hansen’s disease era and those related to early native Hawaiian habitation and use.

- Increase stewardship activities and hands-on learning opportunities related to the protection and preservation of archeological resources, historic structures, cultural landscapes, and museum collections.
- Explore changes to and/or additional designations for Kalaupapa, including the North Shore Cliffs National Natural Landmark, National Register of Historic Places nominations for a potential Kalaupapa peninsula archeological district and a traditional cultural property, as well as a World Heritage Site nomination.

Historic Structures and Cultural Landscapes

- At a minimum, document and stabilize all NHL-contributing historic structures to prevent further loss of historic fabric.
- Guide the treatment of individual buildings through a phased strategy that considers historic preservation goals and management needs. Historic preservation treatments include stabilization, preservation, rehabilitation, and adaptive use.
- Use historic structures for visitor facilities, partner uses, and park operations; and select historic structures would serve as interpretive exhibits.
- Paschoal Hall would be used as the primary visitor facility.



Left: Our Lady of the Sick Catholic Church 1890s. Photo courtesy of Damien Museum. Right: St. Francis Church in Kalaupapa Settlement today. NPS photo.

- Select historic structures would remain in a stabilized condition until partnership arrangements are made to secure funding for their long-term treatment and use.
- In the event of a catastrophic loss of historic structures, the NPS would make decisions on a case-by-case basis to determine the future management of impacted buildings.
- The NPS would maintain an adaptive management philosophy, considering new opportunities and risks as they arise and reprioritizing historic preservation projects as appropriate.
- Non-historic structures could be stabilized, maintained, remodeled, and adaptively re-used for operations, or allowed to deteriorate until they become a safety hazard, and removed.

Natural Resources

- Expand research and monitoring programs to better understand ecosystem processes using both traditional and contemporary methods.
- Involve partners and stewardship groups in natural resource management activities.
- Continue and expand the vegetation management program.



- Work to restore select marine areas, which could include enlisting stewardship groups to help remove alien species.
- Explore a local marine managed area designation.

Fishing, Hunting, and Gathering

- Work cooperatively with the State of Hawai‘i and community partners to manage marine resource use and ensure the sustainability of the resources for future generations.
- Look to existing cooperative models for fishing best practices.
- Hunting would continue to be managed according to State of Hawai‘i laws.
- Work cooperatively with State of Hawai‘i and partners to establish new hunting regulations for safety above and below the 500-foot elevation.
- Engage partners and service groups in preservation activities that support traditional cultural uses.

Interpretation and Education

- Focus most educational efforts on onsite visitor learning and enjoyment opportunities that contribute to the preservation of Kalaupapa’s resources.
- Engage stewardship groups in a wide variety of park projects.
- Greatly expand the growing interpretation and education division over time, including hiring staff.
- Involve residents, ‘ohana, and kama‘āina as cultural interpreters to tell the story of Kalaupapa.
- Improve signs and interpretive waysides at key locations throughout the park.

Visitor Use and Experience

Long-term Overall Guidance

- Visitor rules and regulations would be designed to provide a variety of high-quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship.
- Provide structured and unstructured visitor activities to accommodate visitor needs and desires that are compatible with the purpose of the park.
- Provide hands-on stewardship activities that contribute to the preservation, rehabilitation, and selective restoration of resources.
- Offer visitors the opportunity to explore areas of Kalaupapa on their own.

Number of Visitors: Long-term

- The number of visitors allowed per day would change and would be determined and managed by:
 - capacity of facilities;
 - limits through concessions contracts and commercial use authorizations;
 - an entry pass system;
 - and user capacity guidance.

Orientation and Entry Pass: Long-term

- Establish an entry pass system for all visitors to Kalaupapa Settlement and other areas of the park.
- Require that all visitors receive an orientation to the park. Special provisions for repeat visitors could be established.
- Provide a free day-use option. Visitors would need to ensure they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.

Access to and within Kalaupapa NHP: Long-term

- Allow unescorted public access to all areas within the Engagement Zone to visitors who obtain an entry pass.
- Require escorted access for all other zones below the 500-foot elevation.
- Discourage or prohibit access from outside the park through the Wao Akua Zone to the peninsula to ensure safety and compliance with the entry pass system.
- Areas above the 500-foot elevation in the Wao Akua Zone are largely inaccessible. Hunters would continue to need a valid state hunting permit.

Age Limit: Long-term

- Lift the age restriction to allow visitation by children, when there is no longer a patient community at Kalaupapa.
- Require an adult escort for children under the age 16 for safety purposes and enforcement of visitor rules and regulations.

Overnight Use: Long-term

- Offer overnight use for organized groups and park partners.
- Explore overnight use by the general public in the long-term future, contingent upon securing partnership matching funds to support the rehabilitation of historic structures for public overnight use.

Sustainable Practices and Responses to Climate Change

- Involve partners and stewardship groups in monitoring efforts.
- Increase documentation and monitoring efforts to understand the effects of climate change, including assessing the vulnerability of cultural and natural resources.
- Formally study the feasibility of consolidating energy generation in one or more locations.
- Implement energy and water conservation practices.
- Reduce the fleet to the minimum number of vehicles required for maintenance operations and visitor services.

Access and Transportation Facilities

Long-term Overall Guidance

- Open the pali trail for public access to Kalaupapa.
- Allow public access from Kalaupapa Airport to the settlement.
- Develop a transportation plan to address universal accessibility, the removal of duplicative roads, and areas where access could be restricted for resource protection.

Operations

Staffing

- Maintain the existing staffing level (40 base-funded) and add 17 staff. New positions would be necessary for the expected substantial increase in NPS’s operations to manage the historical park once the DOH departs.
- In the long term, evaluate facility capacities, update the housing plan, and consider allowing family members of NPS staff, concessions, and partners if there is available housing space and infrastructure to accommodate them at Kalaupapa.

Cost Estimates

Annual Operating Costs

- Add approximately \$1,060,000 to the operating base for staffing
- Add approximate \$885,000 for operations and maintenance costs related to capital investments
- The total annual operating costs would be approximately \$6,175,000 per year.

One-time Costs

The majority of costs are for historic preservation treatments to Kalaupapa’s historic buildings and structures. Projects are identified under three different phases and align with the historic preservation strategy for historic buildings and structures described in the Cultural Resources section. The following project types would be included in each phase:

Phase 1 projects are considered essential, total \$16,086,000, and include:

- stabilization of NPS-managed NHL-contributing structures, features, and archeological sites;
- natural resource management projects;
- basic visitor services and long-range interpretive planning;
- life, health, and safety-related projects;
- phase 1 improvements to failing electrical system;
- rehabilitation of the Kalaupapa trail;
- rehabilitation of essential historic buildings for maintenance and park operations;
- and preservation of historic residences used for staff housing.

Phase 2 projects total \$16,020,000 and include:

- stabilization of NHL-contributing structures transferred from the DOH to the NPS, including buildings identified for future concession operation and visitor lodging;
- natural resource monitoring projects;
- preservation and rehabilitation of historic buildings for visitor services, community use, maintenance, park offices, and staff housing;
- interpretive exhibits and media;
- phase 2 improvements to electrical system;
- repaving the road system;
- and the federal share of rehabilitation to historic church buildings and residences for partner use.

Phase 3 projects total \$1,680,000 and include:

- NPS share of rehabilitation costs for roughly 10 historic buildings for basic visitor services operated by a concession or nonprofit organization.

NPS costs for Phases 1, 2, and 3 would total: \$33,785,000

Gross cost estimates, including partnerships costs of \$6,085,000 would total \$39,870,000.

(Note: all costs are in 2012 dollars.)

Boundaries and Land Protection

Propose the designation of two areas (a portion of Pu‘u O Hoku Ranch and Pelekunu Preserve), totaling 12,910 acres, along the North Shore for inclusion in the national park system. These areas could be managed as a “Preserve” whereby traditional hunting, fishing, and collection would be allowed in accordance with State of Hawai‘i rules and regulations.

Consider two options for inclusion in the system, through: 1) a new unit, the North Shore Cliffs National Preserve and 2) boundary expansion of Kalaupapa NHP. In either option, it is assumed that Kalaupapa NHP staff would manage the areas. Landownership within the proposed boundary area could be both public and private. Private landowners within the newly designated areas could retain their property and would have the option of selling either a full or partial interest (e.g., easement) in their property to the National Park Service. Alternatively, legislation could state that parcels are only added to the preserve upon federal acquisition.

Pu‘u O Hoku Ranch (7,341 acres) is owned by a private landowner. It contains 5 miles of rugged coastline, dramatic sea cliffs, forested mountains, and the upland portions of the Halawa Valley watershed. This parcel is nationally significant for its geological and terrestrial ecological resources and for its native Hawaiian archeological resources. This parcel would be conveyed to the NPS through purchase or donation.

Pelekunu Preserve (5,259 acres) is owned by The Nature Conservancy (TNC) and other owners. Directly adjacent to Kalaupapa NHP, it encompasses Pelekunu watershed, its tributaries, a protected lowland rainforest, and verdant sea cliffs. TNC is a willing seller. TNC and the other owners could maintain ownership of shared parcels. Pelekunu watershed also includes several small privately owned parcels, totaling 310 acres. Private property rights would continue unless property owners are sell or transfer their property to the NPS. These landowners may not wish to be included in an NPS designation.



Photo by T. Scott Williams, NPS.

Alternative D

Alternative D focuses on personal connections to Kalaupapa through visitation by the general public. Resources would be managed for long-term preservation through NPS-led programs throughout the park. This alternative focuses on learning about Kalaupapa’s people and history through direct experience, exploration, and immersion in the historic setting. This alternative offers visitors the greatest opportunities to explore areas of Kalaupapa on their own. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap while continuing to limit the number of visitors per day through new mechanisms.

This overview includes major actions and emphasis areas of alternative D. For a more detailed description of the actions in alternative D, see the “Alternative D” section of Chapter 3 of the draft GMP.

Management Structure, Partnerships, and Agreements

- Same as alternatives B and C.

Cultural And Natural Resources

- Similar to alternative C, however preserve and enhance the built environment to provide an immersion experience. Visitors would be offered opportunities to engage in onsite living cultural activities and demonstrations of resource management techniques.

Hunting, Fishing, and Gathering

- Same as alternatives B and C.

Interpretation and Education

- Similar to alternative C, however provide a broader range of interpretive and educational activities.

Visitor Use and Experience

Long-term Overall Guidance

- Visitor rules and regulations would be designed to provide a variety of high-quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship.

- Provide the widest range of traditional visitor experiences within Kalaupapa.
- Provide structured and unstructured visitor activities to accommodate visitor needs and desires that are compatible with the purpose of the park.
- Offer visitors the opportunity to explore areas of Kalaupapa on their own.

Number of Visitors: Long-term

- Same as alternative C.

Orientation: Long-term

- Same as alternative C.

Access to and within Kalaupapa NHP: Long-term

- Same as alternative C.

Age Limit: Long-term

- Same as alternative C.

Overnight Use: Long-term

- Same as alternative C.

Sustainable Practices and Responses to Climate Change

- Same as alternatives B and C.

Access and Transportation Facilities

Long-term Overall Guidance

- Similar to alternative C, plus:



Cemetery at St. Philomena in Kalawao. Photo by Jeffrey Mallin.

- Allow larger planes with a limit of 20 passengers to use the Kalaupapa Airport. Emergency fire responses at the airport would be required to meet the increased limit.
- Establish a new trail to Kalawao using the Old Damien Road.
- Establish a trail to the Wai‘ale‘ia waterfall.
- Create a loop trail around Kauhakō Crater.
- Adapt the unpaved road around the peninsula to allow for pedestrian access with minimal signage.

Operations

Staffing

- Maintain the existing staffing level (40 base-funded) and add 20 staff.

Cost Estimates

Annual Operating Costs

- Add approximately \$1,330,000 to the operating base for staffing.
- Add approximately \$885,000 for operations and maintenance costs related to capital investments
- The total annual operating costs would be approximately \$6,445,000 per year.

One-time Costs

Specific projects and phasing of projects would be similar to alternative C, however alternative D costs would differ because there would be more emphasis on a variety of on onsite visitor opportunities. The majority of costs are for historic preservation treatments to Kalaupapa’s historic buildings and structures.

Phase 1 projects total \$16,645,000.
Phase 2 projects total \$15,380,000.
Phase 3 projects total \$1,680,000.
NPS costs for Phases 1, 2, and 3 would total: \$33,705,000.
Gross cost estimates, including partnerships costs of \$5,215,000 would total \$38,920,000.
(Note: all costs are in 2012 dollars.)

Boundaries and Land Protection

No boundary proposal.



Botanist collecting plant samples on ‘Ōkala islet. NPS photo.

User Capacity

General management plans are required to identify and implement user capacities for all areas of a park. The National Park Service defines user capacity as the type and level of visitor use that can be accommodated while sustaining desired park resource conditions and achieving desired visitor experiences consistent with the purpose of a national park unit. The overall strategy of implementing a user capacity program is a tiered approach, monitoring indicators and managing to maintain (or achieve) identified standards and conditions. At the general management plan level of decision-making, desired resource conditions are maintained and desired visitor experiences are achieved through the use of management zone prescriptions. User capacity includes managing all components of visitor use (levels, types, behavior, timing, and distribution). User capacity guidance varies for each management zone. The guidance identifies indicators that may be monitored and a range of actions that may be taken when indicators are not showing progress towards meeting desired conditions. In addition, the NPS would manage use levels through a variety of strategies including an entry pass system, concessions contracts, and agreements and authorizations with partners and commercial use operators.

For additional information about user capacity at Kalaupapa National Historical Park, see the “User Capacity” section of Chapter 3 of the draft GMP.

Environmental Consequences

The potential effects of the four alternatives are analyzed for cultural resources, natural resources, wild and scenic rivers, scenic resources, transportation, visitor use and experience, access and transportation, operations, the socio-economic environment, sustainability, and safety and security. This analysis is the basis for comparing the advantages and disadvantages of the alternatives. Impacts are described in terms of whether they are negligible, minor, moderate, or major, and how long they would last.

Cumulative Impacts

Cumulative impacts on the environment result from the incremental (i.e., additive) impact of an action when added to other past, present, and reasonable foreseeable future actions, regardless of who undertakes such actions. Cumulative impacts can result from individually minor but collectively major actions over a period of time. For this planning effort, actions within Kalaupapa NHP and by others that have occurred within the island of Molokai or would occur in the foreseeable future were identified.

Summary of Impacts

The following discussion summarizes impacts of all alternatives considered, in accordance with the National Environmental Policy Act.

Impacts from Alternative A

Continuation of current management under alternative A, the no-action alternative, would generally result in adverse, long-term impacts to resources. Minor to major adverse impacts could eventually result from alternative A if the resources are not actively managed and preserved. Historic buildings would be at the greatest risk to be impacted because of natural deterioration from climate and pests, buildings being vacant and under-utilized, and the challenges of funding the preservation of 250 historic buildings. Visitor use and experience would be limited, lacking interpretive and educational programs. This would cause long-term moderate adverse impacts to visitor experience and use. Continuing the current visitation cap and age restriction would benefit ethnographic resources by perpetuating a long tradition at Kalaupapa and could potentially reduce the number of injuries and accidents. However, restricting the age and numbers of visitors would result in a moderate adverse impact to the visitor experience.

Impacts from Alternative B

Implementation of alternative B provides guidance for the long term and is the most restrictive of the action alternatives related to visitor use and access. Implementation of alternative B would generally result in negligible to moderate beneficial and adverse impacts in the long term to resources. Historic buildings, as in alternative A, would be at the greatest risk and could result in moderate adverse impacts. Visitor use and experience would be similar to alternative A with some additional opportunities for visitors to learn about and experience Kalaupapa. The addition of outreach and educational programs would be a minor beneficial impact. Impacts would be long-term, minor, and adverse to the visitor experience, enjoyment, education, and interpretive opportunities. Similar to the other action alternatives, a long-term minor adverse effect on operations would be the lack of medical facilities to treat sick or injured visitors as well as readily available transportation.

Impacts from Alternative C

Implementation of alternative C, the preferred alternative, focuses on collaboration with agency partners, organizations, and institutions to steward Kalaupapa's varied lands. Stewardship and group participation are strong components of this alternative and bring both benefits and impacts. The rehabilitation of historic buildings would help to preserve historic buildings and could result in long-term moderate beneficial impact. The increase in education and interpretation and hands-on learning through stewardship activities would help support the management and protection of resources. Changes to visitor rules by changing the cap on visitation and allowing children would benefit the visitor experience and provide additional preservation and protection through stewardship programs. There could be potential adverse impacts to resources from increased access and use. These changes would result in long-term minor to

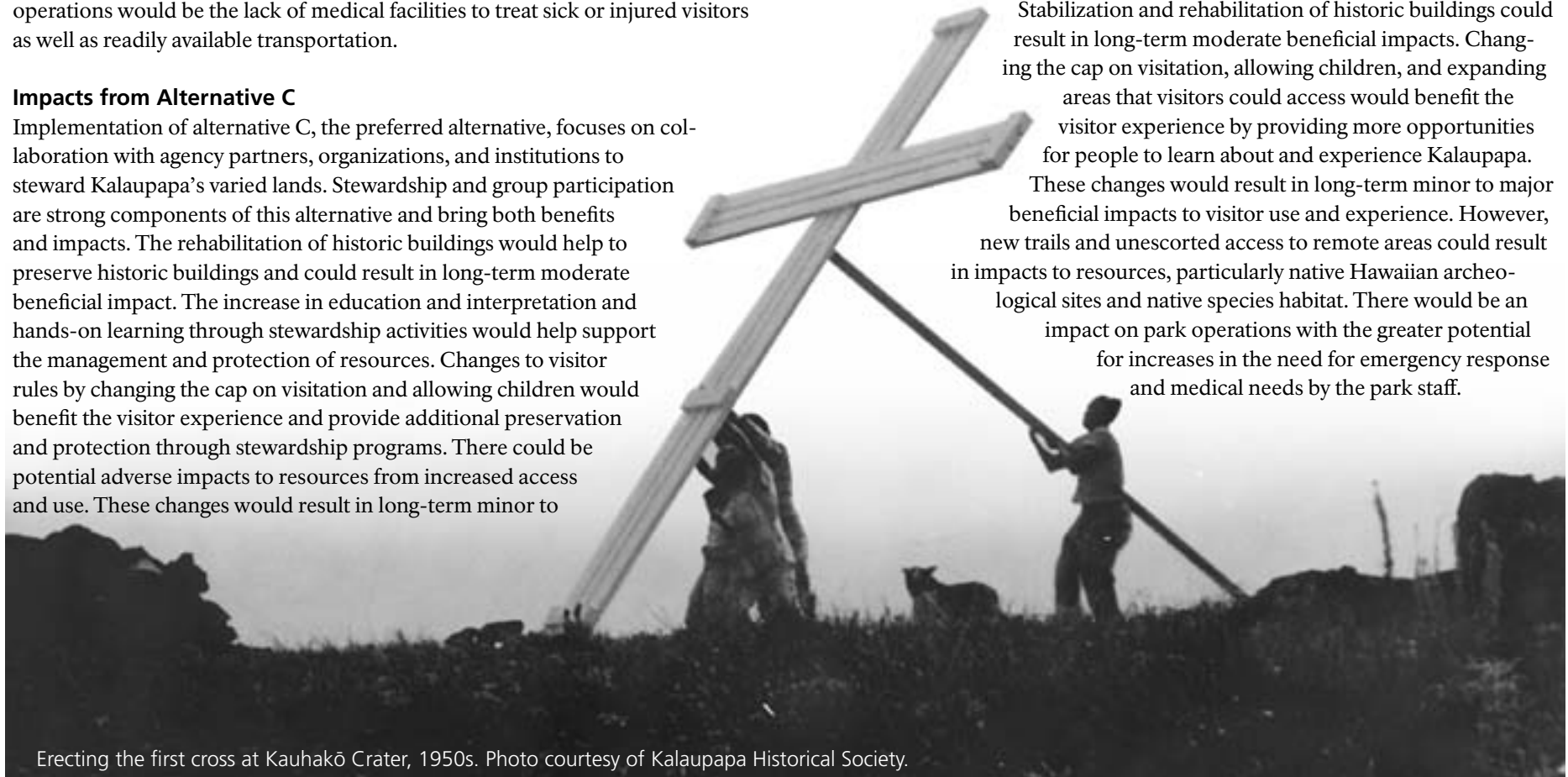
major beneficial impacts to visitor use and experience. An impact on park operations would be the potential for increased emergency response and medical needs by the park staff.

Impacts from Alternative D

Implementation of alternative D provides the largest engagement zone for visitors and is the least restrictive on numbers and visitation. Alternative D would generally result in impacts associated with a larger area of visitor engagement and the largest numbers of the general public as visitors. This could have a negligible to minor long-term adverse impact to cultural, historic, and natural resources due to visitor use. Alternative D would have the most rehabilitation of historic buildings which promotes use and preservation of the buildings.

Stabilization and rehabilitation of historic buildings could result in long-term moderate beneficial impacts. Changing the cap on visitation, allowing children, and expanding areas that visitors could access would benefit the visitor experience by providing more opportunities for people to learn about and experience Kalaupapa.

These changes would result in long-term minor to major beneficial impacts to visitor use and experience. However, new trails and unescorted access to remote areas could result in impacts to resources, particularly native Hawaiian archaeological sites and native species habitat. There would be an impact on park operations with the greater potential for increases in the need for emergency response and medical needs by the park staff.



Erecting the first cross at Kauhakō Crater, 1950s. Photo courtesy of Kalaupapa Historical Society.



Introduction —



Kalaupapa peninsula from the pali trail. Photo by T. Scott Williams, NPS.

Description of Kalaupapa National Historical Park

Kalaupapa National Historical Park is a unit of the National Park System and is managed by the National Park Service (NPS). Kalaupapa National Historical Park is located on a peninsula on the north coast of the island of Molokai in the State of Hawai‘i. Kalaupapa National Historical Park is within Hawai‘i’s Second Congressional District in Kalawao County.

Description of Kalaupapa National Historical Park

Kalaupapa National Historical Park (NHP) was established by Congress on December 22, 1980 “in order to provide for the preservation of the unique nationally and internationally significant cultural, historic, educational and scenic resources of the Kalaupapa settlement on the island of Molokai in the State of Hawai‘i” (Public Law 96-565).

The remote Kalaupapa peninsula was the site of the forced exile and isolation of people afflicted with Hansen’s disease (leprosy) from 1866 until 1969. The establishment of an isolation settlement for people afflicted with Hansen’s disease at Kalaupapa tore apart Hawaiian society as the kingdom, and subsequently, the Territory of Hawai‘i tried to control a feared disease. The impacts of broken connections with the ‘aina (land) and of family members “lost” to Kalaupapa are still felt in Hawai‘i today.

Kalaupapa National Historical Park contains the physical setting for these stories. Within its boundaries are the historic Hansen’s disease settlements of Kalaupapa and Kalawao. The community of Kalaupapa, on the leeward side of Kalaupapa peninsula, is home to fewer than 20 surviving Hansen’s disease patients, whose memories and experiences are cherished values. The average age of patients at Kalaupapa is 77 years old. In Kalawao are the churches of Siloama, established in 1866, and Saint Philomena, associated with the work of Saint Damien (Joseph De Veuster, formally known as Father Damien, canonized on October 11, 2009).

Kalaupapa NHP is designated both as a National Historic Landmark (NHL) and as a National Natural Landmark (NNL). Kalaupapa is nationally significant because it was the first Hansen’s disease (leprosy) settlement in American history; for its association with St. Damien and St. Marianne; and because the built environment is intimately associated with a community of exceptional historical significance and remains an outstanding illustration of the unique way of life created by the residents. A portion of Kalaupapa NHP is within the North Shore Cliffs National Natural Landmark. The North Shore Cliffs rise to heights of more than 3,000 feet above the ocean. The cliffs provide the finest exposures of ancient volcanic rocks resulting from the major episode of volcanism creat-



Baldwin Home Band, date unknown. Kalaupapa Historical Society Photo Collection.

ing Molokai Island; the rock is among some of the most ancient in the Hawaiian Island chain.

The national historical park was established to provide a well-maintained community in which the Hansen’s disease patients were guaranteed that they could remain at Kalaupapa for as long as they wish, and to protect the patients’ current lifestyle and privacy. The park was also established to preserve and interpret the Kalaupapa Settlement for the education and inspiration of present and future generations; to research, preserve, and maintain the historic structures and character of the community, as well as cultural values, native Hawaiian remnants, and natural features; and to provide limited visitation by the general public.

Location and Access

Kalaupapa National Historical Park is located midway along the north coast of the island of Molokai. The park includes 8,725 acres of land and 2,000 acres of water (within the one-quarter mile offshore area). The park includes a flat peninsula on the north shore and three deeply carved valleys whose steep slopes rise from 1,600 to more than 3,000 feet to include the rim of the cliffs. The offshore area encompasses the islets of Huelo and ‘Okala.

Access to Kalaupapa is severely limited. There are no roads to the peninsula from “topside” Molokai. Land access is via a steep trail on the pali (sea cliff) that is approximately three miles long with 26 switchbacks. A commuter class aircraft service provides the main access to Kalaupapa, weather permitting. Mail, freight, and perishable food arrive by cargo plane on a daily basis. A barge brings cargo from Honolulu to Kalaupapa once or twice a year, during the summer months when the sea is relatively calm.

Landownership and Management

Nearly all of the land and improvements within the authorized boundary remain in nonfederal ownership but are managed by the National Park Service. Lands within the park boundary are owned by the State of Hawai‘i departments of Land and Natural Resources, Transportation, and Hawaiian Home Lands. The National Park Service owns 23 acres that includes the historic Molokai Light Station and associated buildings. There are 94 acres of private land within the boundary at the top of the cliffs.

The NPS has formal cooperative agreements with the State of Hawai‘i, departments of Health, Transportation, and Land and Natural Resources. The cooperative agreements allow for shared responsibilities. The NPS maintains a 50-year lease with the State of Hawai‘i, Department of Hawaiian Home Lands. The park also maintains cooperative agreements with religious organizations that had a major presence at Kalaupapa prior to the park’s establishment, including the Roman Catholic Church in the State of Hawai‘i and the Hawai‘i Conference Foundation of the United Church of Christ.

As the patient population continues to diminish at Kalaupapa, the presence of the Hawai‘i Department of Health (DOH) will also be reduced. The DOH provides patient care at the hospital/care-home and still manages many of the settlement’s facilities and operations. The DOH continues to transfer building and site management responsibilities to the NPS. The NPS manages and maintains many of the historic buildings that are contributing structures to the national historic landmark (NHL). The park also has responsibility for the potable water system, landscape maintenance, concessions for trail mule rides, roads and trails, the annual barge, solid waste management and recycling, and wastewater/cesspool management.

Figure 1.1 Regional and Island Context

Description of Kalaupapa National Historical Park

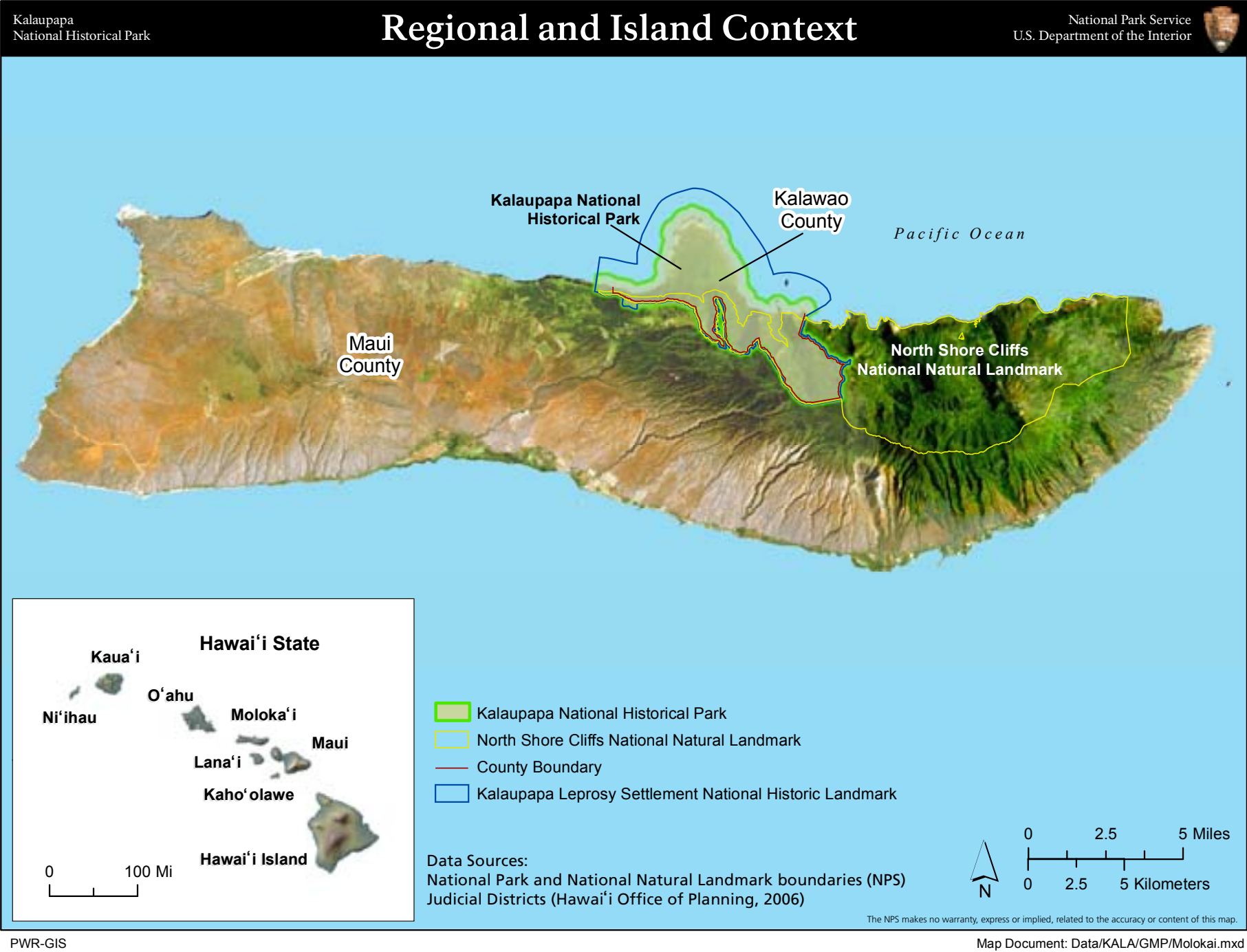
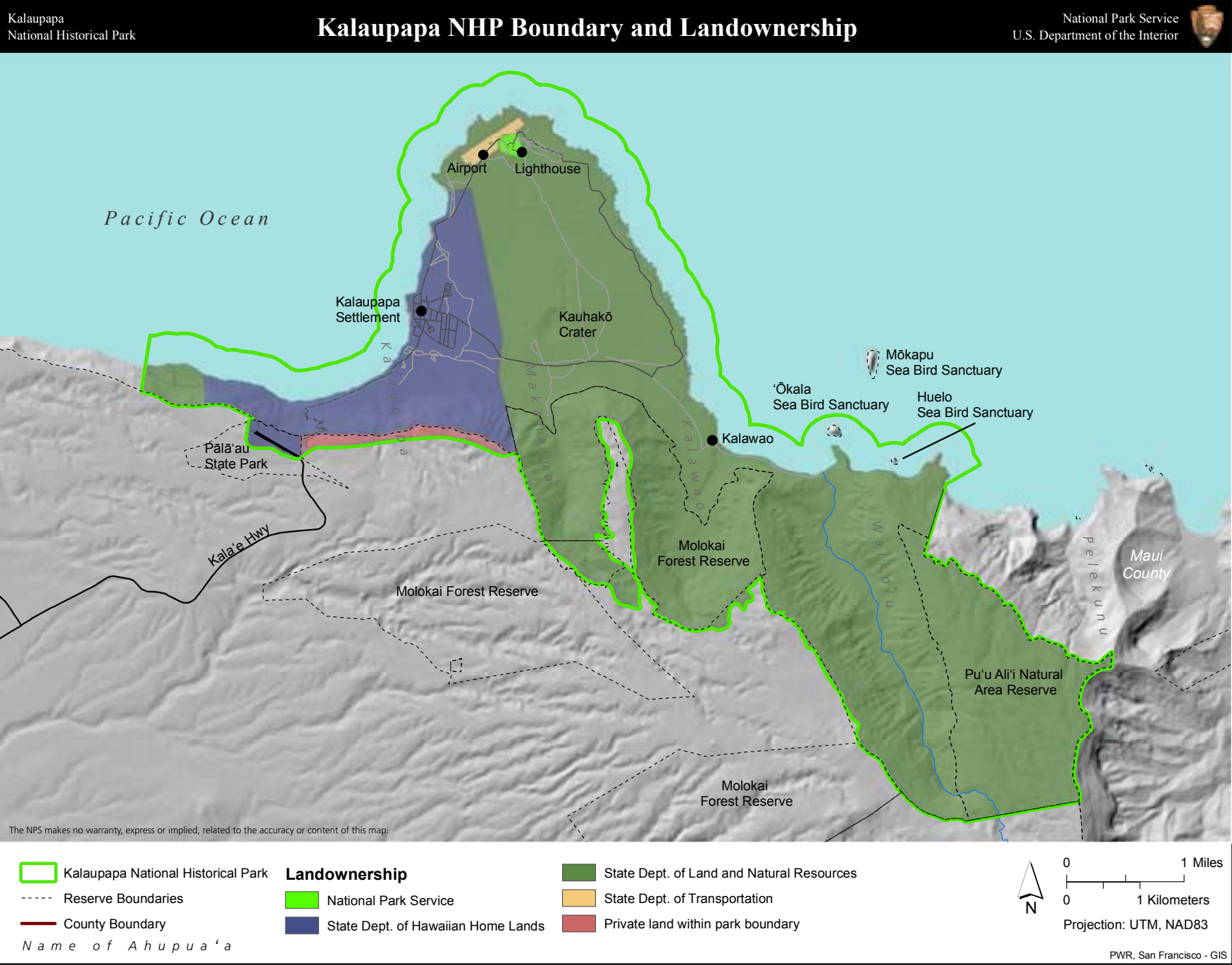


Figure 1.2 Kalaupapa NHP Boundary and Land Ownership



Regional Context

The Hawaiian archipelago consists of more than one hundred islets and atolls that extend in a chain nearly 2,000 miles across the north-central Pacific Ocean. The island of Molokai is approximately in the center of the eight major islands in the Hawaiian chain. Molokai is roughly 38 miles long and ranges from six to ten miles wide. The western portion of Molokai consists of a relatively level plateau while the eastern portion consists of native rain forest areas, vertical wave-cut sea cliffs, and deeply eroded valleys. Kalaupapa includes a portion of the north shore sea cliffs, narrow valleys, native plants and wildlife, important marine resources, as well as introduced species. The surrounding lands have complementary uses and management. Most of the adjacent lands are zoned as conservation lands while a smaller portion is zoned for agriculture, including cattle grazing. Lands zoned as conservation are owned and managed by the state as well as the Nature Conservancy. Other lands adjacent to the park boundary are privately owned.

Most of the island of Molokai is within the jurisdiction of Maui County. However, the park is situated within Kalawao County, governed by the director of the state Department of Health (DOH) who serves as mayor. The jurisdiction of the Department of Health covers all of Kalawao County including lands owned by Department of Hawaiian Home Lands (DHHL), Department of Land and Natural Resources (DLNR) and Department of Transportation (DOT). The DOH director may adopt such rules and regulations as considered necessary to manage the community.

The decisions made in this general management plan will affect resources throughout the region, just as decisions made by other governmental agencies and landowners will affect management of Kalaupapa NHP. A description of plans and planning projects in the region is described later in this chapter.

Kalaupapa National Historical Park is in Hawai'i's Second Congressional District.



Historical Background

‘Āina O Ka ‘Eha‘eha (Land of Suffering)

The history of Kalaupapa is the compelling story of some 8,000 people exiled into isolation because of Hansen’s disease (leprosy) during the nineteenth and twentieth centuries. Located on the remote Makanalua peninsula of Molokai, more commonly known as Kalaupapa peninsula, thousands of people afflicted with leprosy were forcibly sent there from 1866 to 1969. At its peak in the late 19th century, over 1,100 people lived at the settlement. In 1969, the segregation ban was lifted due to the discovery of sulfone drugs and their derivatives that arrested the advancement and communicability of the disease. Resident patients were allowed to leave the settlement but many stayed. Today there is still a small community of surviving patient residents.

Throughout this section of the report,” Kalaupapa peninsula” and “Kalaupapa” is a general term used to broadly describe the whole peninsula of land comprising the three traditional Hawaiian land divisions (ahupua‘a) of Kalawao, Makanalua, and Kalaupapa. Kalawao was the first colony established in 1866 on the eastern side of the peninsula and Kalaupapa Settlement refers to the second colony established on the western side of the peninsula. By 1932, Kalawao was closed and everyone was relocated to the Kalaupapa Settlement.

Leprosy, a Misunderstood Disease

Leprosy, a disease feared and misunderstood by many, has existed for centuries and dates back to the ancient civilizations of Egypt, China, and India. Early myths about the disease associated it with biblical references and attributed leprosy to God’s punishment for immoral behavior and sexual promiscuity. The word “leprosy” conjured up images of horrific disfigurement. Leprosy victims were, and still often are, stigmatized and shunned by mainstream society.

The real cause of leprosy was unknown until 1873, when the *Mycobacterium leprae* bacillus was discovered by Dr. Gerhard Henrik Armauer Hansen of Norway. It was the first time a bacterium, or germ, was linked to disease in humans. A chronic infectious disease, leprosy “mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract and also the eyes, apart from some other structures” (World Health Organization). Susceptibility to leprosy is hereditary in only three to five percent of the population.

Current medical research is still uncertain about the way leprosy is transmitted.

Researchers postulate that it is spread by prolonged contact with an infected person through cough and nasal droplet nuclei by the respiratory system and possibly through broken skin. The incubation period for leprosy is about three to five years. Since the mid-1940s, sulfone drugs, dapsone, and its derivatives have been used to successfully treat the disease on an outpatient basis. If treated, there is no need to segregate anyone because of leprosy. We now know that arrested leprosy is neither contagious nor incurable.

Overview of the Kalaupapa Peninsula

The peninsula of Kalaupapa was once home to a thriving Hawaiian community that supported a sizable population prior to Western contact. Kalo (taro) and ‘uala (sweet potato) were the two main food staples grown. The lush valleys were well-suited for growing wetland taro (lo‘i kalo) because of the availability of water from mountain streams. ‘Uala was better suited to the kula lands that were flat and needed less water to produce abundant crops. Most

of the taro production occurred in the neighboring Waikolu Valley because of the constant water supply.

Early ethnographic information about the peninsula is scant, probably partly due to its remote location, accessible by sea primarily during summer and periods of calm weather, or by steep and winding cliff trails. In the history of



Three women at Bishop Home with musical instruments, date unknown. Photo courtesy of Damien Museum.

Molokai, Kalaupapa peninsula was the center of several political struggles. Oral history describes a large battle fought over fishing rights on the Makanalua plain between the Kona (leeward) and Ko‘olau (windward) chiefs. The Ko‘olau chiefs lost this particular battle. Molokai Island, renowned for being a food basket with its many fishponds, was favored by Kamehameha and his chiefs. This is evident in the claims made by the ali‘i during the Māhele of 1848.

Documented accounts of visitors to the peninsula before 1866 are sparse. French botanist M. Jules Remy was an early traveler to Kalaupapa in June of 1854. He travelled by canoe along the windward coast, starting at Hālawā and ending at Kalaupapa where he hiked up the pali (cliff) trail. After visiting Waikolu, Remy walked along the rocky beach to Kalawao. He traveled the length of the peninsula to the village of Kalaupapa by horseback. Along the way, he noted “cultivated land” and a “village surrounded by fields of sweet potatoes [‘uala]” (Remy 1893, 20).

Kalaupapa became especially famous as a sweet potato growing region during the California Gold Rush. Ships from San Francisco stopped regularly to buy sweet potatoes to supply the mining towns. Kalaupapa was said to be a “good land” with “large gains” for crops. By this time animals had been introduced to the peninsula—horses, donkeys, mules, and cattle. From Kalaupapa to Waikolu over one hundred animals could be counted (Handy and Handy 1972, 518).

Archeological evidence indicates that the Kalaupapa field system was developed approximately between 1450 and 1550 and was possibly abandoned by the late 1700s, due to shifting demographics as a result of European contact. Around 1850, the field system was utilized again to meet the demand of the gold rush. Sweet potatoes were exported to the other Hawaiian Islands and to California until 1866, when the first boatload of patients arrived on the peninsula (Handy and Handy 1972, 518; McCoy 2005, 38).

Travelers who came to Kalaupapa after Remy often described the peninsula as a treeless plain. Historic photographs of the early leprosy settlement confirm

this. The trees and verdant growth were in the well-watered valleys and upper mountain regions, but the plains were essentially treeless. The few remaining patients who arrived at Kalaupapa over 70 years ago say they could once see the ocean from almost anywhere along Damien Road due to the lack of trees and overgrowth.

Early Demographics for Molokai and Kalaupapa Peninsula

Early missionaries conducted the first unofficial census and population estimates of Molokai and the peninsula. Taken between 1832 and 1833, population counts for the entire island vary widely, from 3,300 inhabitants to 6,000 (Curtis 1991, 9–10). These unofficial counts were taken by missionaries and by native school teachers and were likely associated with school and church attendance. There was no official census taken at Kalaupapa peninsula until after the leprosy settlement was established in 1866.

Traditional Land Tenure before the Great Māhele of 1848

Prior to 1848, the Hawaiian system of land tenure was based on use-rights rather than the Western system of ownership. The king did not personally own any land. Instead, he held and managed the land for the nation. The land belonged to everyone: the king, the chiefs, and the general populace, for the common good of all (Alexander to Thurston, Jan. 9, 1888).

Traditionally, each island was divided into smaller land divisions or ahupua‘a that were managed for the king by a konohiki (land manager). The maka‘āinana lived within the ahupua‘a on smaller plots of land called kuleana where they farmed and subsisted. They worked on the land for subsistence and also gave tribute in the way of resources to the king. The intent of the ahupua‘a system was that one would have most of the needed resources within the ahupua‘a to live a subsistence lifestyle.

In 1848, the Great Māhele was enacted which divided and redistributed the Hawaiian lands.



A familiar site on the Kalaupapa peninsula are rock walls that provide evidence of past land divisions and agriculture. NPS photo.

A Brief History of Leprosy in Hawai‘i

It is uncertain when and how leprosy first came to Hawai‘i. Some historians speculate that leprosy might have existed in Hawai‘i before 1820, when the first missionaries arrived. Board of Health records indicate that the first cases were noticed between 1820 and 1840.

There was no word for leprosy in the Hawaiian language, as the disease was new to Hawai‘i in the 1800s. Hawaiians only knew of leprosy in the context of the Bible and as it was introduced to them by the first missionary arrivals in 1820. Ma‘i ali‘i, the chief’s or royal disease, was the early name coined for leprosy by the Hawaiians (Pukui, Elbert, and Mookini 1986, 221). It seems the Hawaiian chiefs were the first to noticeably contract the disease and from them it was thought the disease spread to the maka‘āinana (common people). Many believed that the Chinese were responsible for bringing leprosy to Hawai‘i, even though there is no conclusive evidence to support this. As leprosy spread from the chiefly class to the general populace, the Hawaiian name for leprosy became known as “ma‘i Pākē” or the “Chinese sickness.”

In the Hawaiian language the word “leprosy” was transliterated into one word, “lēpera” or “lēpela,” to refer to the afflicted person as well as the condition and the disease. In the 1940s, patients lobbied to use the term Hansen’s disease instead of leprosy. In an attempt to counteract social stigma and bring a sense of dignity to the disease, in 1949, the State of Hawai‘i officially made the decision to use the term “Hansen’s disease.”

Prelude to an Act

Since contact with the Western world in 1778, introduced diseases took a heavy toll on native Hawaiian health. This reached epidemic proportions during the early to mid-1800s. The Hawaiian king Kamehameha III (Kauikeaouli) was greatly troubled by the state of the kingdom and the health of his people. On December 13, 1850, he instituted a Board of Health to study health issues “for the preservation and cure of contagious, epidemic and other diseases, and more especially of Cholera” (BOH Supplement report 1886c, 4). In 1855, under the rule of Kamehameha IV (Alexander Liholiho), hospitals were established via legislative act (Mouritz 1943, 13; Moblo 1996, 63). Meanwhile, incidences of leprosy became more frequent.

By the early 1860s, leprosy was noticeably present among the Hawaiian population. In April 1863 Dr. William Hillebrand, the well-respected medical director at Queen’s Hospital, reported to the Board of Health that he was concerned about the “rapid spread of that new disease, called by the natives ‘Mai Pake’” (BOH Supplement report 1886c, 4). He was beginning to see an increasing number of leprosy cases at the hospital, and he suggested that the board develop a plan to isolate leprosy victims from the rest of the population (BOH Supplement report 1886c, 5). Discussions followed but no decisions were immediately made.

Since the establishment of the Board of Health in 1850, two monarchs had died and Kamehameha V (Lot Kapuāiwa) was now the reigning king. On January 3, 1865, at the recommendation of his Privy Council, King Kamehameha V signed into law “An Act to Prevent the Spread of Leprosy” (BOH Supplement report 1886c, 8–10).

The act, comprised of seven sections, authorized the Board of Health to do the following:

1. Set aside any portion of land(s) owned by the government for isolation of leprosy.
2. If no such land was available, the Board could either purchase or exchange lands for a more suitable site.
3. Confine anyone who might spread leprosy and, if the board so requested, also authorize the police and district justices to arrest anyone suspected of having leprosy and deliver them to a designated place so the alleged suspects could be examined. Also help in removing such persons either to a treatment facility or a place of isolation as determined by the Board of Health.
4. Establish a hospital for treatment and potential cure; the act also gave the board power to discharge anyone who was cured or send anyone who was incurable to a place of isolation.
5. Allow the board or its agents to require patients to work as long as it was approved by a doctor; allow the board to make any number of rules and regulations and enforce them.
6. Request that any personal wealth or property of the committed person be used to repay expenses of the board for that person’s healthcare.

7. Require the Board of Health to keep accurate records of any monies appropriated by legislature; require that the amounts expended for leprosy be kept separate from general funds; it also required the board to report to the legislature at each regular session on the expenditures and any information regarding leprosy and general public health (BOH Supplement report 1886c, 8–10)

Once a person was suspected of having leprosy and picked up by the local law officer, he or she came under the jurisdiction of the Board of Health for examination and treatment and/or isolation. It was up to the Board of Health to determine if a person really had leprosy, and whether a person could be released if later deemed “cured.”

Planning for Isolation

Once the Segregation Act of 1865 passed, the board made plans to select a site for a temporary hospital to deal with urgent cases, to continue further study of leprosy, and to establish regulations (BOH Supplement report 1886c, 11, 18). In June 1865, the Board of Health discussed two plans. The first was to establish a hospital and settlement of about 50 acres close to the sea and near Honolulu that could accommodate both light and severe cases, thus concentrating efforts. This plan would be simplified and less expensive. The second plan was to establish hospitals and living spaces on 5 to 10 acres for light cases in the hope that they could be treated, cured and released. In addition, a large piece of land would be purchased on another island where those with advance stages of leprosy and those considered incurable would be isolated from the rest of society.

Reverend Dwight Baldwin, a Board of Health member and missionary doctor, suggested Kalawao on the northern coast of Molokai as an ideal place for isolation because of its physical location. Kalawao was separated from the rest of Molokai Island by steep cliffs, and sea landings were difficult during most of the year. At the time, it was thought there was accessible water from nearby streams and the land was fertile enough to farm (Cooke 1949, 94; BOH Supplement report 1886c, 8–10).

The board believed that the Molokai settlement could eventually become self-supporting without much expense to the government, offering a better situation for patients than they experienced at home. There was no thought given to the basic needs of everyday living, such as shelter, warm clothing, blankets, regular food supplies, and especially medical care. The need for building a hospital, staffing it with doctors and nurses, and providing medicine and clean medical supplies was not considered. The board members favored this second plan, which in hindsight proved even more costly than anticipated.

On O‘ahu, a plot of land bordering Kalihi stream in a secluded area of Kalihi Kai was purchased to build a hospital for light cases that could house 50 people (BOH Supplement report 1886c, 21–22). Then, on September 20, 1865, Walter M. Gibson, president of the Board of Health, announced that 700 to 800 acres of land on Kalaupapa peninsula, Molokai had been purchased for about \$1,800 cash (BOH Supplement report 1886c, 27–28). Fifteen to twenty houses on the land were also acquired with the expectation that the first few patients would inhabit them.

The purchase of land at Kalaupapa set in motion the plan for segregation. Notices from the Board of Health were sent out to about 50 known persons with leprosy informing them to report to Kalihi Hospital for examination on November 13, 1865.

Within the Hawaiian system of apportioning lands, the peninsula of Kalaupapa was divided into three traditional ahupua‘a, or districts. Moving from east to west, these ahupua‘a are Kalawao, where the first leprosy settlement was established; Makanalua, in the middle; and Kalau-papa, where the present-day settlement is located. Makanalua is the largest of the three.

East of Kalawao, the neighboring Waikolu Valley with its perennial stream was its own ahupua‘a. But since the settlement’s establishment in 1866, Waikolu has been contained within the settlement boundaries. The Waikolu kuleana lands were specifically acquired by the Board of Health to ensure segregation



The earliest houses at Kalaupapa were constructed of local materials. Date unknown. Photo courtesy of Damien Museum.

and to grow food for patients. Traditionally the ‘ili, or subdivision, of Nihoa has also always been associated with Kalaupapa and is included within the settlement boundary. Today, the westernmost boundary of Nihoa is the dividing line between Kalawao and Maui counties.

Hawaiian Sentiment about the Segregation Policy

Sentiments soon gave way to anger, frustration, and confusion when loved ones were sent away and families were separated. Almost one year after the first patients were sent to Kalaupapa, a writer in a December 1866 edition of the *Pacific Commercial Advertiser* accused the Board of Health of “human infamy and official neglect.”

Hawaiians continued to write complaint letters and petitions asking for leprosy hospitals to be built on each island, so that patients could receive humane medical treatment and ample food and supplies and receive visits from loved ones. In 1874, native Hawaiians petitioned the legislature for the leprosy patients to be released. They demanded that anyone be allowed to treat leprosy, in particular, native practitioners specializing in lā‘au lapa‘au (herbal treatments) (Moblo 1996: 54-56). Letters continued to be written well into the 20th century asking for humane treatment for sufferers of leprosy. In the 1940s sulfone drugs were discovered and in 1969, 104 years after segregation, the segregation law was finally lifted. Patients were finally free to leave the settlement and come and go as they pleased, without fear of detention or arrest. Despite this new freedom, the social stigma associated with Hansen’s disease continued, and many patients felt shunned by their communities even after their treatments were complete.

The Hoa‘āina (Native Tenants) of Kalawao and Kalaupapa Settlement

In order to enforce the Segregation Act, the Board of Health realized they had to remove the hoa‘āina (or native tenants) from Waikolu and Kalawao, either by buying them out, offering them a land exchange with government lands on an

island of their choice, or a combination of both. Once the hoa‘āina departed, their houses would be available for patients and their cultivated plots of wetland kalo in Waikolu Valley and ‘uala in the kula lands would provide a steady supply of food. After the hoa‘āina left, Meyer reported a total of 47 houses in Waikolu and Kalawao, most of them thatched, and only three or four made of wood (BOH Appendix 1886b, cxxvi; Meyer-Widemann, December 5, 1865; Greene 1985, 50 fn).

To negotiate the sale of lands, the Board of Health enlisted the help of Rudolph W. Meyer, a German surveyor who came to Hawai‘i in 1850. Meyer lived at the top of the pali at Kala‘e where he had a small sugar and coffee plantation.

Besides his surveying skills, Meyer also spoke and wrote in Hawaiian (Meyer 1982, 21, 26). As a surveyor, he was familiar with the lands below the pali and with many of the hoa‘āina. In his 30-year tenure as agent (a position he held until his death), Meyer clearly favored the Board of Health in negotiations. He did not give any advantages to the Hawaiians, even though he was married to the Hawaiian high chiefess Kalama Waha.

Meyer was instructed to secure the kuleana of native tenants in Waikolu and Kalawao, along with their houses and any cultivated plots. But the hoa‘āina refused to sell or exchange their lands without careful consideration. In addition to asking to see the list of lands they could choose from for exchange, they also requested

more time to reflect on the offer and make a decision.

Eventually, on Meyer’s recommendation, the Board of Health decided to buy out all the hoa‘āina with cash and have them deed their land to the Hawaiian government. Meyer felt this was better for the government and in the long run would be less trouble than a land exchange. After seeing the Kainalu lands on Molokai that were proposed for exchange, he thought it would be difficult to meet every landowner’s expectations of equitable compensation . By the end of 1865, almost all of the kuleana in Waikolu and Kalawao had been bought out by the Board of Health in preparation for the arrival of the first patients.

Strangers in a New Land: the First Pioneers

On January 6, 1866, the first group of leprosy patients were boarded onto the schooner Warwick and sent to Molokai. They were a group of 12 individuals: nine men (Kahauliko, Lae, Liilii, Puha, Kini, Lono, Waipio, Kainaina and Kaau-moana) and three women (Nauhina, Lakapu, and Kepihe). The trip to a strange, new place must have been difficult for those first patients. January is an especially cold, rainy, and windy time of year on the peninsula. Eleven of the twelve died within the first five years.

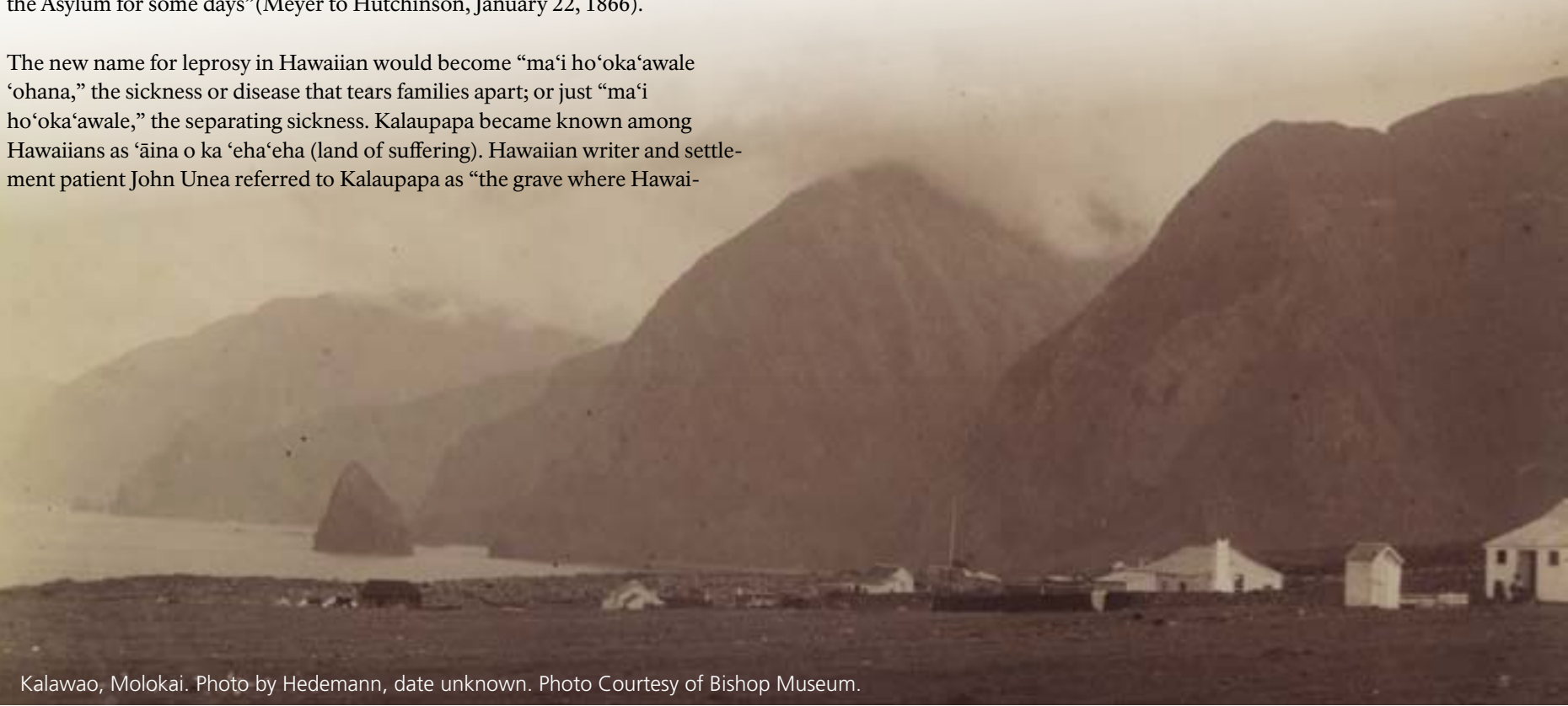
From the very beginning, it was difficult to keep families apart and control segregation. A January 1866 letter from Rudolph Meyer to Dr. Ferdinand Hutchison, Minister of the Interior of the Hawaiian kingdom, reports of a little boy who was hidden away on that first shipload of patients: “this boy is now living with them. They even managed to keep the boy secreted during the day time in the Asylum for some days”(Meyer to Hutchinson, January 22, 1866).

The new name for leprosy in Hawaiian would become “ma‘i ho‘oka‘awale ‘ohana,” the sickness or disease that tears families apart; or just “ma‘i ho‘oka‘awale,” the separating sickness. Kalaupapa became known among Hawaiians as ‘āina o ka ‘eha‘eha (land of suffering). Hawaiian writer and settlement patient John Unea referred to Kalaupapa as “the grave where Hawai-

ians are being buried alive”: “Ka lua kupapa‘u e kanu ola ai nei nā kānaka Hawai‘i” (Unea, April 13, 1917, 1). Unea himself is buried at Papaloa Cemetery in Kalaupapa

Pioneering a Settlement: the Early Years, 1866–73

The Board of Health highly underestimated the cost to establish a program for segregation. It was believed the patients would be able to support themselves by raising animals, farming, fishing, and living the subsistence lifestyle to which they were accustomed. To this end, the Board of Health purchased “a few beef cattle, sheep, goats, etc., for the use of the settlement at Molokai, in order that it may, as far as possible, become self-supporting in the future” (BOH Supplement Report 1866, 40). The Board did not account for the ravaging effects of leprosy or the inhospitable cold, damp Kalawao climate, which contributed to the patients’ decline and their inability to undertake simple day-to-day tasks.



Kalawao, Molokai. Photo by Hedemann, date unknown. Photo Courtesy of Bishop Museum.

When the first shipload of patients arrived, at least five or six months had passed since the original native tenants had vacated their kuleana. The board expected these pioneer patients to gather food from the *hoa‘āina’s* cultivated gardens, but in the interim the land had been neglected and was overgrown with weeds, and the taro had rotted in the fields. The patients worked very hard and were able to salvage enough food to eat. They got along in this way until several more shiploads of patients arrived, putting stress on their food resources. When new arrivals landed food provisions were not given to them by the board, who expected them to eat off the land. The only food available to new arrivals was shared by the first comers, and the insufficient food caused disputes among the patients.

Luckily the land was abundant with an edible native pea or bean. Many patients were able to survive with the help of this legume for the first eight or nine months, until the board began shipping over regular rations of salt beef, salt salmon, and *pa‘i ‘ai* (hard, undiluted poi) to supplement the food shortage in the short term. The board still hoped the patients could become self-supporting in the long term. Often the food rations sent by the board were spoiled and unfit to eat by the time they reached the patients, and if the ocean was too rough for the boat to land, the patients went without. In the beginning, the allotted food ration was three pounds of meat and one bundle of *pa‘i ‘ai* per week and nothing more. Patients complained that it was not enough to feed a man for that time period, and the ration was eventually increased to seven pounds of meat and a 21-lb. bundle of *pa‘i ‘ai* per week (BOH Appendix N (Meyer)1886b, cxxvi-cxxvii).

Louis Lepart, Frenchman and former Sacred Hearts brother, was hired for \$400 a year as the first resident superintendent of the settlement (BOH Supplement report 1886 (Sept. 20, 1865), 28). But as Meyer pointed out in his report to the board, Lepart did not look out for the interests of the patients. Though he met the new arrivals when they landed, showed them where to live, and passed out weekly food rations, Lepart was not liked by the patients (BOH Appendix N (Meyer)1886b, cxxvii). He did not speak Hawaiian or English, and communication was difficult at best. The patients believed he should be doing more to help them and complained that they were doing his work.

On behalf of all the patients, Kahauliko, who was a patient and leader, wrote to the secretary of the Board of Health stating their problems and requesting that specific items be sent to the settlement (Moblo 1996, 70). Kahauliko

prefaced his letter by saying that the patients were all “getting along” in their new home. But in regard to food and resources on the peninsula, the patients requested a *kama‘āina*—an old-timer who was familiar with the land and its resources and boundaries—to show them “everything that belongs to the land,” where the *mea ‘ai* (food) grew on the land, particularly foods planted on the pali. The patients could not get enough fish or meat to eat, not because it wasn’t locally available, but because they were *malihini* (newcomers, guests) and not *kama‘āina* (familiar) to the land where those food resources were found. Hawaiian protocol required that they ask permission of the peninsula’s *kama‘āina* to be shown where the *ahupua‘a* and *kuleana* boundaries were and where to find food and the other resources they needed. Mr. Lepart had shown them the few things he knew of on the plains (i.e., the *kula* lands), but he was not a *kama‘āina* himself and his knowledge of the food resources was limited (Kahauliko to Heuck, February 1, 1866).

After Kahauliko’s letter, the Board of Health sent provisions over the course of a few months that included clothing, medicine, agricultural implements, tools, a canoe, fishing nets, and carts and oxen, which cost the Board of Health a total \$1,801.43. Previously, the board expended \$450 for some young heifers, a few horses, sheep, goats, poultry, and other livestock (BOH Supplement 1886 (Sept. 20, 1865), 42).

Soon a new problem presented itself: there were not enough homes at Waikolu and Kalawao for all of the arriving patients. Nearly four months after the first patients arrived, Meyer reported that all the houses at Waikolu and Kalawao were occupied. He asked the Board of Health to consider building new houses and suggested that the remaining *hoa‘āina* who lived at Makanalua and Kalaupapa could provide the labor. The Board of Health patient register shows that by the end April 1866, 76 patients had been sent to Kalawao. By early June of 1866, Meyer struck a deal with the *hoa‘āina* to build houses at Kalawao.

The Role of Kōkua

The primary meaning of the Hawaiian word “*kōkua*” is to help, aid, and offer assistance (Pukui, Elbert, and Mookini 1986, 162). In the beginning, patients were allowed to have *kōkua* (a helper) accompany them: these included spouses, family, and friends (BOH Appendix 1886b, cxxvi). As a general rule, children were not allowed as *kōkua*, but there were some instances

where a spouse came as *kōkua* to a husband or wife, bringing their young child with them.

The help of *kōkua* was necessary to establish and run the settlement. Many of the patients were too sick to work, and there was no staff support or employees other than the resident superintendent. As the settlement became more established, *kōkua* took on important roles in the community. Patients in advanced stages of leprosy especially needed help because there was no hospital and no medical staff to provide care for them. A resident doctor was not placed at the settlement until 1878–79, 12 years after its founding. *Kōkua* provided all manner of support to patients: they tended to medical needs, washed clothes, cooked food, carried water, cut wood for fuel, distributed rations, helped slaughter animals, and tended to crops (BOH Appendix 1886b, cxxx).

The use of the term “*kōkua*” in relation to settlement history has always meant an unpaid helper, often a family member, who helps out of true aloha for the patient with no thought of compensation in return. Today, the remaining patients still use the word “*kōkua*” to refer to the state and federal workers who provide support to the patient community. And even though they are paid employees, many *kōkua* working at Kalaupapa say they still feel a sense of duty and service that comes out of their aloha for the patients.



Siloama Church before 1885. Hawai‘i State Archives.

Enforcing Segregation

The Board of Health expected all healthy patients to work to support themselves by planting and tending crops. But many patients did not fully understand the implications of a quarantine law, and it led to confusion and resistance. Some patients did not believe they would be at Kalawao for long and they saw no need to plant crops. Others believed there was no legal basis for segregation and the law would not stand; they thought they would soon be able to return to their homes (Moblo 1997, 692–93). Their petitions to the Board of Health and the Hawaiian government fell on deaf ears.

The Board of Health failed to understand that Hawaiians were not afraid of leprosy, did not believe it was particularly contagious, and saw no need for segregation. They lived together under the same roof, freely fraternized with the afflicted, wore their clothing, and ate out of the same poi calabash. The patients, the *kōkua*, and the *hoa‘āina* who remained at Makanalua and Kalaupapa disputed the segregation policy. Patients and their *kōkua* visited the homes of the *hoa‘āina*, sharing food and celebrating special occasions. Lepart tried to scare the patients into compliance by threatening them with *kapu* (restrictions) and large fines, but such tactics did not work. These ongoing infractions against the rules led to laws in 1870 and 1888 that prohibited patients from going up the



Siloama Church today. NPS photo.

trail without a permit from the superintendent and forbade patients and kōkua from entering or living on any kuleana or any house owned by a kama‘āina in Kalaupapa ahupua‘a or anywhere else in the settlement.

Superintendents

After six years of foreign superintendents, who did not speak Hawaiian and were largely unsuccessful in communicating with patients, resolving disputes, or enforcing the segregation policy, the board appointed its first Hawaiian superintendent. These foreign superintendents included Rudolph W. Meyer, Louis Lepart, Mr. and Mrs. Donald Walsh, and Mrs. Caroline and Mr. William Walsh.

The idea of using Hawaiian superintendents had been discussed before. The board finally decided to appoint a Hawaiian superintendent, Kaho‘ohuli, who was a new patient and former captain of the King’s Guard. The following remarks by Meyer and Dr. Hillebrand echo the ethnocentric and colonial sentiment of the time period. Meyer wrote in his 1886 report: “Natives are perfectly willing to submit to considerable pressure, even oppression, if it comes from one of their own people, but not from a foreigner” (BOH Appendix N 1886b, cxxvii; BOH Supplement 1886c, 59). Kaho‘ohuli was in charge of the settlement, but the board was unwilling to allow him to control the finances, per Dr. Hillebrand’s recommendation: “I do believe a native of the better class would answer better than most white men, but as regards the economical and financial management, I believe, this could not be entrusted safely to any native. They are lacking altogether in foresight, calculation and methodical planning” (quoted in Moblo 1996, 99). One notable Hawaiian superintendent was Ambrose Hutchison whose father, Ferdinand, also served as president of the Board of Health. Ambrose was superintendent from 1884-1897. He was sent to Kalawao in 1879 and lived there until his death in 1932.

Controversies Bring Reforms

A lack of pa‘i ‘ai for rations continued to plague the Board of Health for some years. Rice could be substituted, but the patients much preferred taro since it was their traditional staple. Newer patients coming to the settlement also wanted a greater variety of food. In 1872 dairy cattle were brought to the peninsula, mainly for use by patients living in the hospital. The settlement was starting to take shape by this time. The patients had organized themselves into a community of sorts. They planted enough crops to supplement the rations they

received from the board. Crops included sweet potato, bananas, and sugar cane. Their rations had also increased to five pounds of fresh meat (usually mutton) and 21 pounds of pa‘i ‘ai each week. Patients were also allowed to sell any extra crops they grew. In this way they were able to earn money to buy the few extra things they needed. To solve the clothing shortage, a store was opened in July 1873 at Kalawao (BOH 1886, 61–62; Greene 1985, 61, 64).

Even though their conditions had improved somewhat since the arrival of the first pioneer patients, life was still difficult and posed immense challenges. The climate was inhospitable much of the year, the comfort and quality of the houses was poor, the nutritional quality of the food was questionable, food was insufficient in quantity, delivery of rations was irregular, and one had to walk long distances for water and to pick up rations. Medical care was still lacking: the hospital did not have beds, there was no doctor in residence, and doctor’s visits were few and far between. Between 1866 and 1873, nearly 40% of the patients died (Greene 1985).

In 1873, the population nearly doubled when 487 new patients arrived in Kalawao. This put a strain on the board’s finances and on food and housing at the settlement. Kōkua were no longer allowed to accompany patients, and some kōkua were asked to leave to make room for new patients arriving. Outside visitation by family and friends to the settlement was no longer allowed except in extreme circumstances (Moblo 1996, 113–15; Greene 1985, 63).

Nineteenth-century Kalaupapa Hoa‘āina

In early 1873 hoa‘āina were still living on kuleana at Kalaupapa ahupua‘a. Reports of patients fraternizing with hoa‘āina in their homes, and stories of patients and friends coming in and out of the settlement via the pali trail were increasing. Infractions of the law were common. In the midst of increasing numbers at Kalawao and with a desire for more stringent enforcement of the newly amended 1865 law, Meyer met with the hoa‘āina to discuss selling their kuleana to the Board of Health. The 24 kuleana encompassed an area of about 80 acres and included seven wood houses and some grass huts. The hoa‘āina asked for \$25 per house and \$50 for each acre and were eventually paid less than what was originally requested (Meyer to Gulick, March 28, 1873). It was not until 1894 that the last of the remaining hoa‘āina left Kalaupapa peninsula.

Historic Figures at Kalaupapa

Saint Damien

Note: Damien was canonized a saint in 2009. In this section he is referred to in the historical context of the time period being discussed: “Father Damien” rather than “Saint Damien.”

Born Joseph De Veuster in Belgium, Father Damien was the son of a Catholic Flemish farmer. Ordained into the priesthood at the Cathedral of Our Lady of Peace in Honolulu on May 21, 1864, he spent his first eight years on Hawai‘i Island in Puna, Kohala, and Hamakua.

Father Damien was 33 when he arrived at Kalaupapa on May 10, 1873, as the resident Sacred Hearts priest. He was one of four young priests who volunteered to go, and he planned to rotate out after three months. Accompanied by Bishop Maigret, Father Damien arrived at Kalaupapa from Maui on the “Kilauea.” On board the steamer were 50 new exiles and a shipment of cattle for the settlement. As the boat approached the priests were spotted and “Those who were able to walk ran down from Kalawao . . . How great was their joy, when I presented to them the man who had asked to come to them and was henceforth to be their father! They cast themselves on their knees with tears brimming in their eyes” (Englebert 1962, 137–38). Bishop Maigret gave in to Damien’s request to stay at Kalawao permanently. Coming with only the clothes on his back, Damien spent his first few nights under a pū hala tree next to the future site of St. Philomena Church.

Father Damien’s tenure from 1873–89 was not without controversy. He was in the public eye from the day of his arrival, and over the years he was able to use that edge to petition for supplies and needed improvements for the patients. He was not afraid to take on the difficult issues in the settlement, in particular working to bring a sense of order to the community and fighting against what

he considered immorality and the lawlessness that existed. Damien cared for the patients’ physical needs first, whether or not they were Catholic. He washed and dressed their sores, passed out medicines, shared his food with them, and worked and prayed with them. Gradually the people came to trust and love him.

Some of the larger, more pressing problems that Damien noted upon his arrival were the quality of the residents’ diet; the condition of the houses, which he described as “small, damp huts” with little or no ventilation; insufficient warm clothing and blankets, especially during the winter’s cold and rainy season (BOH Appendix 1886b, cxiv–cxvi); and lack of medicine, medical supplies, and trained medical staff (BOH Appendix 1886b, cxxiii).

In the pioneer period, from 1866 to 1873, there was no resident doctor and the settlement lacked basic medical supplies and trained staff. As a result, many of the residents went without “simple medicines,” salves, and bandages. They had only to depend on the few herbal experts (kahuna lā‘au lapa‘au) in the settlement and their own knowledge of home remedies and medicinal herbs. What little medicine the superintendents possessed was given to the sickest patients first. There was no one to clean and bandage open, seeping wounds to prevent them from infection. Other common ailments like fevers and diarrhea were exacerbated and sometimes caused death because they were left untreated.

Beginning in 1873, improvements were made which Damien credited to the arrival of haole (Caucasian foreigner) patient resident Mr. Williamson, who had some training as an assistant with the doctors at Kalihi Hospital (BOH Report 1886, 73). Williamson attended the residents in the hospital while Damien visited people outside in their homes. Once the residents began to see the positive effects of such basic medical care they began to seek it out, and the overall condition of the residents improved. The Board of Health did not employ a



Father Damien with the members of the Kalawao Choral Group at St. Philomena, 1870s. Photo courtesy of Hawai‘i State Archives.

resident doctor until 1878: until then the pair did the best they could with the supplies they had on hand (BOH Appendix 1886b, cxxiii).

Damien established group homes for orphan children, where they could get regular meals, education, attention, and care. In mid-1879 Damien built a home for boys near the rectory that included a kitchen and dormitory big enough to sleep 12 boys. The home became so popular that adults without family or friends wanted to live there as well. A larger dormitory (20 by 40 feet) was needed and Damien built it just north of the first one.

Father Damien contracted Hansen’s disease and his worsened health and weakened condition was noticeable by the end of February 1889. He now exhibited advanced signs of lepromatous leprosy: swollen face and hands, loss of facial hair, particularly the eyebrows, enlarged earlobes, and visible sores on his hands and face. Father Damien died on April 15, 1889, but not before asking Mother Marianne and the Franciscan sisters to take care of “his boys.”

In 1936 at the request of the Belgian king, Father Damien’s body was exhumed and returned to his native homeland. The beatification process was started in 1938, and on July 7, 1977 Father Damien was declared Venerable (Greene 1985, 186–87, 192–93). Damien was beatified in 1995 and canonized as Saint Damien on October 11, 2009. He is known to the world as Saint Damien of Molokai.

Saint Marianne
Note: Marianne was canonized a saint in 2012. In this section she is referred to in the historical context of the time period being discussed: “Mother Marianne” rather than “Saint Marianne.”

The need for nurses to care for female children, women, the elderly, and the bed-ridden was answered by the arrival in Hawai‘i of the Franciscan sisters of St. Anthony, based in Syracuse, New York. Over fifty different sisterhoods were

asked to come and administer to the sick at Kalawao. But only one answered the call, Mother Marianne Cope and the Sisters of St. Francis.

Barbara Koob emigrated from Germany to Utica, New York in 1839. In 1862 she entered the Franciscan order of sisters in Syracuse and took the religious name of Marianne. Her early work prepared her for Kalaupapa. Before coming to Hawai‘i, she helped found two hospitals in Syracuse. Arriving in Hawai‘i in 1883, she first served as the Mother Superior at the Kaka‘ako Branch Hospital in Honolulu. It was not until 1888 that Mother Marianne and two nuns were allowed to travel to their new home at Kalaupapa (Long 2012; Greene 1985, 179). Their main task was to supervise the Bishop Home for young girls and unmarried women. A small chapel was built on the grounds. The sisters called their new home St. Elizabeth Convent (Greene 1985, 180–181).

Mother Marianne died at the age of 80 on August 9, 1918 at Kalaupapa and is buried near the Bishop Home. Shortly afterward, the St. Francis sisters began gathering information towards her canonization. She was named Venerable on April 19, 2004. In anticipation of her sainthood, her remains were exhumed on Jan. 23, 2005. On May 15, 2005, Marianne was beatified. Mother Marianne Cope was canonized as Saint Marianne on October 21, 2012.

Peter Young Ka‘eo
Peter Ka‘eo arrived at Kalaupapa in late June 1873. He was 37 years old and had contracted leprosy in the 1860s. By 1868 his condition had attracted the attention of King Kamehameha V (Queen Emma’s brother-in-law), who wrote to Queen Emma that Peter should be admitted to Kalihi Hospital. (Peter and Emma had been childhood playmates.) It seems nothing was done until Lunalilo ascended the throne and began strict enforcement of the segregation law in an attempt to control leprosy. Under the newly amended law, Peter was among the first people sent to Kalawao. Likely because of his royal status, he was able to move into a house right away, a cottage located on a “treeless slope” in the lea of Kauhakō Hill.

Emma regularly sent him supplies and food rations from Honolulu. They wrote religiously, Emma informing Peter of Honolulu politics and Peter relaying settlement news and gossip. Peter’s stay at the settlement came to a surprising end in 1876, when the Board of Health determined his case was successfully under control. They granted him a release to return home with certain restrictions. Peter died four years later on November 26, 1880, from causes unrelated to leprosy (Korn 1976, xii, 7).

Jonathan H. Napela
Jonathan Hawai‘i Napela had attended the esteemed Lahainaluna Seminary with the first graduating class. Napela was also a trained lawyer and served as a Wailuku district judge for a short time (1848–51). He is most notable for being the first native Hawaiian convert to Mormonism in Hawai‘i and for translating the Book of Mormon into Hawaiian, in 1851–52. He was probably the most influential person in helping the Mormons establish a strong foothold in Hawai‘i (Woods 2008, 137).

In 1872 Napela’s wife, Kiti Kelii Kuaaina Richardson, discovered she had leprosy, and in 1873 she was exiled to Kalawao. Napela asked to accompany her as a kōkua and was soon appointed luna (supervisor) of Kalawao.

Napela would become Damien’s Mormon counterpart, ministering to fellow Mormons and any others who needed care. Napela held Sunday church services at Kauhakō Crater (Korn 1976, 18) for the Mormon community, many of whom lived in the vicinity. Sadly, Napela would also contract leprosy and would die before Kitty, on August 6, 1879. Kitty died just over two weeks later on August 23, at age 45.

Royal Visitors to Kalaupapa
King David Kalākaua succeeded Lunalilo’s short reign (1873–74). Reforms continued under Kalākaua’s rule and interest in Kalawao continued to grow. Legislative committees were appointed and they made regular visits to the settlement to report on the living conditions of the residents (Greene 1985, 93).

Concerned with the health of his people, King Kalākaua visited his patient subjects in April of 1874. In 1881, his sister, Princess Lili‘uokalani, also visited the leprosy settlement. In 1884, both Queen Kapi‘olani and Princess Lili‘uokalani, who would become the last monarch of Hawai‘i, traveled to Kalaupapa. The visits brought attention and publicity to Kalaupapa.

Joseph Dutton
In 1886, hearing of Kalawao and Father Damien’s work with leprosy patients, Joseph Dutton sailed for Hawai‘i. After receiving the permission of Walter Gibson, then president of the Board of Health, Dutton set sail for Kalaupapa where he would spend the next 44 years of his life carrying on the work Damien started.

Like Damien, Dutton was nurse, stone mason, carpenter, gardener, secretary, postmaster, and more. From Dr. Mouritz he learned how to clean sores and ulcers, change bandages, assist with minor surgeries, and dispense salves and medicine. Most of his time was spent attending to the patients’ medical needs. Dutton was instrumental in carrying out Damien’s wishes to enlarge the orphanages. In 1888, two large dormitories were built to replace the earlier buildings Damien had built for the children.

A lay-person, Brother Dutton never took vows, but Father Damien referred to him as “brother”. In 1892 he was admitted to the Third Order of St. Francis. Brother Dutton lived and served the Kalawao community until 1930, when he was taken to Honolulu for medical care. He died at St. Francis hospital just short of his 88th birthday. He was brought back to Kalawao and buried near Father Damien’s grave. (Greene 1985, 171, 247)

Kalawao: 1889–1900

Even with added improvements, life was still difficult and challenging for the patients. By the time of Father Damien’s death, many improvements had been made at Kalawao and at Kalaupapa.



Patients and NPS staff sing during the celebration of the canonization of Saint Marianne, October 2012. Photo by Jeffrey Mallin.



The United States Leprosy Investigation Station opened in December 1909, operated for four years, and closed on August 7, 1913. Photo courtesy of Hawai‘i State Archives.

At Kalawao, there were about ten buildings that included a hospital, dispensary, store, jail, and a guesthouse. At the Boys’ Home there were two new dormitories, a stone cookhouse with an oven, a dining hall, a washhouse and cottage for a nurse, a cottage for the Sisters of St. Francis, and a cottage for Brother Dutton.

Kalaupapa landing was the preferred place where boats came in to drop off supplies and passengers. About 1886, the Board of Health had built a pier at Kalaupapa to facilitate ease of landing by boat. By 1890, the following improvements were noted in an inspection report by the Board of Health. There were many new buildings. Bishop Home had a schoolroom, assembly hall and three large dormitories. There was also a hospital with two wards, a new slaughterhouse with a concrete floor and cattle. There was a dispensary, a storeroom for oil and soap, and a superintendent’s house, office, and outbuildings (Greene 1985, 202–06)

The report also outlined three proposed changes to the settlement, to group the residents into small communities to cut expenses and improve overall living conditions; relocate people to Kalaupapa because it was more spacious and in close proximity to the landing where the climate was warmer and less damp; and to build visitors quarters for visiting friends and family of residents (Greene 1985, 203). By 1895–96 the last remaining *hoa ‘āina* had been bought out making it possible to begin moving the settlement from Kalawao to Kalaupapa. This would take place over the next 35 years or so.

The Kalawao/Kalaupapa Water System

New exiles to Kalawao found no freshwater springs nearby and no water transportation system in place: water for cooking and drinking had to be carried long distances in containers from the streams. For patients in advanced stages of leprosy, the two-mile round-trip trek to Waikolu was difficult and next to impossible on foot, given their medical condition (Korn 1976, 17-18). There was not enough water for basic hygiene, drinking, cooking, or washing clothes and soiled bandages (BOH Appendix M 1886b, cxiii; BOH Appendix N 1886b, cxxv).

As more patients were sent to Kalawao and agricultural activities expanded, the demand for water increased. When Father Damien arrived in May of 1873, he quickly realized the water supply problem would have to be solved if improvements were to be made in living conditions. The Board of Health had already

considered laying pipes the several miles from Waikolu to Kalawao, but this would be expensive.

In the summer of 1873, the Board of Health provided a pipe for the first water system at Kalawao. Patients and *kōkua* helped to lay the pipe from Wai‘ale‘ia and built a rock-lined water cistern at Kalawao. A growth increase in the mid-1880s proved taxing to this water system, and the Board once again weighed the possibility of piping water from Waikolu Valley. The distance was much farther, but Waikolu was known to have rainfall almost all year round with heavy rains during winter months. Maintaining the pipeline to Waikolu was plagued with problems that went on for nearly 100 years. The pipeline was battered by natural elements—winter storms, falling rocks from the pali above, landslides triggered by earthquakes and the like. Broken joints and smashed pipes constantly needed fixing with repairs sometimes lasting several days or more. A good solution for protecting the Waikolu pipeline across the boulder beach



St. Philomena Church in 1905. Photo courtesy of Hawai‘i State Archives.

segment was never found. There was no backup, and the settlements did not have a source of water during emergencies.

In 1894, the board recommended construction of a reservoir to supply water to the settlement during such times. Two stone reservoirs (50,000 and 150,000 gallons) were built on high ground between Kalawao and Kalaupapa. Both reservoirs are still intact. In 1904, a new 10,000-gallon tank at Makanalua was constructed to help the mid-peninsula area. In 1931, a 750,000-gallon tank made of steel replaced the smaller tank. This increased the storage capacity to over one million gallons of water.

From 1908–37, there were several extensions and modifications to the water system. In 1948, the Waikolu water system was lengthened one last time. This system was used until the 1980s, when the National Park Service, as part of its mandate to “provide a well-maintained community,” reconstructed the water



St. Philomena Church today. NPS photo.

system. Waihānau Valley was chosen for the site of a new well that was completed in August 1983. A second well was added and completed by the end of 1985. Today, the Kalaupapa water system has an ample and reliable water supply to meet the current community needs.

United States Leprosy Investigation Station

In 1905, the U.S. Congress passed an “Act to Provide for the Investigation of Leprosy”. Congress appropriated monies to build a federal leprosarium to study leprosy, its causes and cures. The Territory of Hawai‘i ceded one acre of land to the federal government in exchange for construction of the leprosarium. Any houses standing on the property (about 30) were demolished and the inhabitants relocated to Kalaupapa. The station was to have three compounds, a residence, a hospital and an administration building. A state of the art facility was built and completed in summer of 1909. The station officially opened in December that same year. The total cost of the construction and equipment was \$80,000. To ensure segregation, the entire station was enclosed by a double fence ten feet apart. The life of the station was short-lived and the program was unsuccessful. Only nine patients enlisted to join. As part of the program, patients had to agree to live in the hospital compound totally separated from the rest of the patient community. Being already isolated from family and friends, most patients did not wish to subject themselves to further isolation. The station closed on August 7, 1913. The buildings remained standing until 1929 when the station was torn down and the materials re-used to repair buildings at Kalaupapa (Greene 1985, 251–292).

Kalaupapa Settlement: 1900–29

In the early 1900s, the Board of Health focused on improving the overall conditions of the settlement by constructing new buildings, making additions and repairs to existing structures, and updating facilities and services. During this time period many buildings were erected to support the growing Kalaupapa Settlement— a poi factory, steam laundry, dispensary, store, hospital, cottages for married couples, slaughterhouse, ice plant, and social hall. In 1922–23, electric lights were installed in Kalaupapa.

Group Homes

There were three group homes at Kalaupapa Settlement—Bishop Home, Bay View Home and McVeigh Home. During this time period, Baldwin Home was

still located at Kalawao. Each group home complex was essentially its own little community. The homes were also intended to cater to different groups of people needing care, i.e., single unmarried women, the blind and handicapped, married couples, young boys, and single men. Each home had its own dining hall where meals were centrally prepared. They might also have a dispensary and/or hospital ward to care for the sick. The homes were composed of several buildings for living quarters.

Bay View Home for the Aged and Helpless

Built in early 1901, this home was for both male and female patients without relatives or friends who needed special or advanced care. By midsummer the home was full and with more patients on the waitlist. By 1911 the home had 26 small rooms. Unfortunately a fire destroyed this first Bay View Home around 1914–15. Construction began again and by 1917 three more buildings, two dining rooms, kitchens, and storerooms had been added. The home now accommodated 96 patients. The grounds were landscaped with plants and fruit trees. A picket fence was put up with large concrete posts at the entrance. By 1920, there were five buildings. In 1922 electric lights lit up the home. Other additions included a meat storeroom, a new washhouse and laundry with concrete floor and an assembly hall. Bay View Home was considered one of the



Campout on Nihoa flats. Date unknown. Photo courtesy of Kalaupapa Historical Society.

nicer and more comfortable homes in the settlement. It was staffed with nurses who took care of the aged, blind and handicapped around the clock (Greene 1985, 295–300).

Bishop Home

In 1903–04, Charles Bishop once again donated money to erect another building at the Bishop Home complex— the Home for Blind and Helpless Women at Kalaupapa. It consisted of two wards with rooms, a dining room, and bathroom. Since its initial construction no major improvements had been made to the Bishop Home structures other than general maintenance, painting, whitewashing. Bishop also paid for needed repairs and additions requested by Mother Marianne. The grounds of Bishop Home were full of fruit trees, ironwood, and ornamental plants. Between 1906 and 1911 three new dormitories, a dispensary, and bathhouse were built to replace four older dorms built from scrapped lumber at Kaka’ako Receiving Station on O’ahu. A new picket fence was put up in 1913. The home had electric lights by 1922–23 (Greene 1985, 303, 310).



Bishop Home, 1904. Photo courtesy of Damien Museum.

McVeigh Home for White Foreigners

This complex was named after John McVeigh, settlement superintendent from 1902 to 1929. This group of patients was used to a different standard of living. They were mostly foreigners with different dietary needs. They were not used to the Hawaiian diet or eating poi. Instead they requested food items like coffee, potatoes, sugar and flour. McVeigh thought that if the foreigners had their own community dining hall, they could share their food allowances, purchase the things they wanted and save the board money. A fund for “indigent white patients” had been set up with donations from the public for this specific cause. By 1909 there was enough money to build a group home for white foreigners. The home was completed in 1910. It had 25 bedrooms, a dining hall, a social hall and a hospital ward. One year later, there were only eight white foreigners living at McVeigh Home leaving more than half of the rooms empty. Most of the former housemates had moved out into individual cottages where they had more freedom and privacy. By 1914, the expense of running McVeigh Home was taken from the general appropriations. To keep expenses down, the home was opened to other ethnic groups. In November 1928, the McVeigh Home was destroyed in a fire. A new home, dining hall, and kitchen were built and completed one year later. Both men and women lived there (Greene 1985, 310–11).



Kalaupapa Social Hall, 1940s. Photo courtesy of IDEA Photos.

Kalaupapa Social Hall

About 1916, a community social hall was erected. The seating capacity was 350 people. The social hall was the main entertainment center for the community. It was used for movies, dances, festive parties, concerts, plays, and theatre performances. In 1916, there were only silent movies. In 1931, the first “talkie” movie was shown at the hall.

In 1958 the hall was renamed Paschoal Hall after Manuel G. Paschoal, a Hawai’i legislator who was an advocate for the people of Kalaupapa.

In the 1990s stabilization and restoration work on the hall was begun and completed in three phases. During this time, a period of about 14 years, the hall was closed for community use. In 2012 the work was completed and the hall was blessed and reopened for community use.

Molokai Light Station

In 1907 money was appropriated to establish a lighthouse near the coast at Kalaupapa. The lighthouse was completed for use and manned by a lighthouse keeper and attendants in 1909. For the first thirty years, lighthouse keepers



Molokai Light Station, 1930s. Photo by Franklin Mark.

from the federal lighthouse service attended to the daily duties. After that, the lighthouse was managed by the Coast Guard. In 1966, the light was automated and remains that way to this day. In 2006, the property, light station, and associated historic structures were transferred to the NPS.

Revitalization of Kalaupapa Settlement: 1931–38

Even with all the additions, repairs, and renovations that occurred from 1900–1929, living conditions on the peninsula were considered deplorable and unsatisfactory. Under the leadership of Governor Lawrence Judd, Territory of Hawai‘i, government money was appropriated for improving and rehabilitating the Kalihi Receiving Station and Kalaupapa Settlement. Four hundred thousand dollars was given in the 1931 biennium and two hundred thousand more in 1932. More funds were appropriated in 1933. The first few years were dedicated to planning and arranging contracts for the work to be done. Most of the building facilities at Kalaupapa today are a direct result of this revitalization effort that continued through 1938. In particular, a new hospital and dispensary with updated equipment, offices and other supporting facilities were built to provide better nursing care to patients. (Greene 1985, 383–85, 413)



Visitors’ Quarters, 1932. Photo courtesy of IDEA Photos.

One of the notable events during this time was that the Baldwin Home at Kalawao closed and everyone was relocated to Kalaupapa Settlement. This was the last group of patients to move to Kalaupapa. Kalawao, as a settlement, formally closed. Out of deference to Brother Dutton, who refused to relocate to Kalaupapa, the “old” Baldwin Home at Kalawao was kept opened until he left the peninsula in 1930. A “new” Baldwin Home was converted from the old general hospital at Kalaupapa. It could house 30 to 35 patients. New additions and renovations were made until 1938 to improve the New Baldwin Home facilities (Greene 1985, 422–23).

Kalaupapa Settlement: 1940–69

By this time the big renovations and construction projects were completed. Most major repairs and new construction were done if deemed necessary or an emergency.

Five months after Pearl Harbor was bombed in December, 1941, 35 patients, including all the children, were moved from Kalihi Hospital near Pearl Harbor to Kalaupapa on May 15, 1942. This was done for their safety. A direct result



Pearl City Tavern players (a popular Honolulu bar) perform at Paschoal Hall, 1950s. Photo courtesy of Kalaupapa Historical Society.

of having young school-aged children at Kalaupapa was that the school was reopened and the Kalaupapa Boy Scout Troop No. 46 was organized. The war also encouraged people to start gardens and grow fresh vegetables since shipping supplies by boat was lessened or curtailed altogether. Farming, poultry, and hogs, also increased (Greene 1985, 524–25).

1946 Tidal Wave

A tidal wave struck the western shoreline of the Kalaupapa coast on April 1, 1946. At the Kalaupapa pier, the wave was 25 feet higher than usual and at the mouth of Waikolu Valley it was 55 feet. The wave came ashore at Bay View Home and travelled north past the wharf and industrial center, past the cemeteries at Papaloa and out toward the airport. Twelve of the beach homes were washed to sea and others were damaged. At Papaloa, gravestones were moved off the foundations; some were irreparably damaged, destroyed or washed out to sea (Greene 1985 525–26, 534).



Labor Day picnic with tug-of-war game at Judd Park, Kalawao, 1952. Kalaupapa Historical Society Photo Collection.

Sulfone Drugs to Treat Leprosy

The discovery of sulfone drugs in 1943 and their use as a treatment for leprosy began in 1946. By mid-1948 positive results were seen in patients being treated. In 1948, there were 280 patients in the settlement. About 240 patients agreed to undergo voluntary treatment with sulfone drugs. More patients were temporarily released and there were fewer deaths.

Lawrence Judd Brings Social Improvements to Kalaupapa

In 1947 former governor Lawrence Judd became the resident superintendent of Kalaupapa Settlement. Mr. Judd and his wife, Eva Marie, were instrumental in improving social conditions at Kalaupapa. They encouraged the patients to keep busy and to get involved in all kinds of social activities, clubs and adult education classes. Different clubs were organized— the Lion’s Club, the American Legion, the Boy Scouts, an Entertainment Club, a Young Peoples Club and a Craft Club. The Judds also encouraged patients to travel out to visit their families and for visitors to come to Kalaupapa (Greene 1983, 526–29).



Parade at Kalaupapa, early 1900s. Photo courtesy of Damien Museum.

Judd is best remembered by the patients for removing some of the barriers of segregation at Kalaupapa—the 20-foot-high fence around the guest house, the railing between the superintendent’s desk and the bench where patients sat when talking with him, and the gate and guard at the top of the pali trail. In 1950, patients were allowed to fly to other islands on temporary leave (Greene 1983, 530).

Other Changes to Kalaupapa Settlement

In 1950, the New Baldwin Home for Men and Boys and Bay View home merged together to save costs. The Sacred Hearts brothers were still in charge of the homes. But in 1951 all of the brothers, except for four, left Kalaupapa for good. The Catholic brothers had served at Kalaupapa for 56 years (Greene 1985, 551).

In 1954, a subcommittee of the Hansen’s disease Advisory Committee noted that nearly one-third of the homes were beyond repair and needed to be replaced. The New Baldwin Home had also been torn down. No new individual homes had been built since 1932 and in 1939 the last road was macadamized. In 1955, funds were appropriated for new patient cottages and for construction and paving of new roads. Money was also appropriated to equip the theater at the social hall to show Cinemascope pictures. By this time, the number of patients living in the large group homes and dormitories had decreased. Many patients wanted more independence and freedom to cook their own meals and draw their own rations. They wanted the group homes converted into cottages and to make some of the small units available to single people and not just couples. This conversion began to take place in 1957–58, in particular, at McVeigh Home (Greene 1985, 557–60). It was cheaper to convert existing structures than to build new ones.

One notable event in 1957 was that five patients opened concessions to run their own taxi and guided tour service. One of them, Damien Tours, is still operating today.

End of Isolation

In 1960–61 a new administration building was built to replace the old one near the Kalaupapa landing. Small general improvements continued to be made but no other large projects were undertaken in the 1960s. In the late sixties two important changes occurred in the history of the settlement. In 1968 all fumigation of outgoing mail was discontinued and, in 1969, the segregation

and isolation law was lifted. From this time on all new patients were treated as outpatients and no new patients were admitted. Patients sent there were free to leave the settlement to live independently in the outside world.

Kalaupapa: 1970 to the Present

During the 1970s Kalaupapa’s residents turned towards the future, with a desire to tell the story of Hansen’s disease in Hawai‘i, as well as protect their privacy and lifestyles. Doing away with segregation gave the patients new-found freedom and independence to come and go as they pleased. They were free to explore and discover new things. The world opened up for them. They visited their families and friends. Many patients began traveling to other Hawaiian Islands and destinations both within the United States and abroad. More recently, because of the recent canonizations of Saint Damien and Saint Marianne, many of the surviving patients have journeyed to the Vatican in Rome.

For many patients, Kalaupapa was like a prison for them when they first arrived. But in their golden years, they have come to love and embrace Kalaupapa as their home. It has become a safe haven from the outside and ever-changing world. Today they are able to choose how much of the world they wish to experience, knowing they can always return to the safety of Kalaupapa.

Chapter 4 provides more information about the contemporary patient community at Kalaupapa.

Establishment of Kalaupapa National Historical Park

In 1976 Public Law 94-518 called for a study, conducted by the Department of the Interior, to determine the feasibility and desirability of establishing Kalaupapa as part of the national park system. With the help of patient advocates and, in particular, Richard Marks, Kalaupapa was established as a national historical park on December 22, 1980.

The park is currently managed jointly by the National Park Service and the Hawai‘i Department of Health. One of the main purposes of the park is to protect the current lifestyle of the remaining patient community, to preserve the stories of the patients, as well as the cultural and natural resources on the peninsula, and to educate the public about Kalaupapa’s amazing and extraordinary legacy.

Overview of the NPS Planning Process

Planning provides an opportunity to create a vision and to define a park’s role in relation to its national, natural, historic, and community settings. The planning process is designed to provide decision-makers with adequate information about resources, impacts, and costs. Decisions made within this planning context are more likely to be successful over time and promote a more efficient use of public funds.

A general management plan (GMP) is the result of a logical decision-making process, in which relevant information is gathered and used to make a series of related decisions. The process of creating a GMP ensures that park managers, partners, and the public share a clearly defined understanding of the resource conditions, opportunities for visitor experiences, and general kinds of management, access, and development that will best achieve a park’s purpose and conserve its resources unimpaired for the enjoyment of future generations. General management plans are intended to be long-term documents that establish and articulate a management philosophy and framework for decision-making and problem-solving in the parks.



Ruins of the old hospital at Kalaupapa Settlement, 2012. NPS photo.

General Management Plans

The National Parks and Recreation Act of 1978 (Public Law 95-625) requires the preparation and timely revision of general management plans for each unit of the national park system; and NPS Management Policies (2006) call for each GMP to “. . .set forth a management concept for the park [and] establish a role for the unit within the context of regional trends and plans for conservation, recreation, transportation, economic development and other regional issues. . .”

Congress has also specifically directed (16 U.S.C. 1a-7[b]) the NPS to consider, as part of the planning process the following elements: “General management plans for each unit shall include, but not be limited to:

- measures for the preservation of the area’s resources;
- indications of types and general intensities of development (including visitor circulation and transportation patterns, systems and modes) associated with public enjoyment and use of the area, including general locations, timing of implementation, and anticipated costs;
- identification of an implementation commitment for visitor carrying capacities for all areas of the unit; and
- indications of potential modifications to the external boundaries of the unit, and the reasons therefore.”

The proposed GMP is accompanied by an environmental impact statement, required by the National Environmental Policy Act (NEPA), which identifies and evaluates the effects or impacts of various alternative approaches to the protection and appropriate uses of Kalaupapa NHP.

As plans that focus on desired conditions to be achieved and maintained over a relatively long period of time, GMPs are generally large in scope, implemented in phases over many years, and contain little or no detail about specific actions. As a result, the NEPA analysis for GMPs is typically a programmatic, or broad-scale analysis, rather than a site-specific analysis. As decision-making moves from general management planning into program planning, strategic planning, and implementation planning, the need for information becomes increasingly focused and specific, requiring additional analysis at those levels.

Public involvement provided critical input into this plan. Several opportunities for involvement, from the scoping phase to the release of preliminary alternatives to the draft general management plan were provided and comments were solicited from local community residents, agency partners, other stakeholders, and the general public. See "Chapter Six: Public Involvement" for more details on this process.

Planning for Kalaupapa National Historical Park

An interdisciplinary planning team was assembled in 2008. It was comprised of the Kalaupapa NHP superintendent and staff, Pacific West Regional Office planners and specialists, and representatives of the State of Hawai‘i partner agencies, and subject matter experts from the Hansen’s disease patient resident community. The planning team met periodically between 2008 and 2013 to gather background information, develop the foundation document for Kalaupapa NHP, examine resources, identify issues, discuss public concerns, and develop and refine alternative management concepts and actions for the park. Throughout the planning process, public participation played a large part in helping to focus the plan, identify issues, and formulate alternatives.

The NPS’s involvement with Kalaupapa and this GMP were of intense interest and concern locally, regionally and nationally. Many family members of Hansen’s disease patients from multiple ethnic backgrounds have an intense interest in keeping Kalaupapa a place to memorialize their loved ones. The 8,000 people who were sent to Kalaupapa over a one hundred year period have ‘ohana (family or relatives) who are still living and feel directly connected and invested in Kalaupapa. The emotional pain and tragedy that these families experienced as a result of the separation continues to be heartfelt and real. These feelings manifest themselves in a high level of awareness and concern



Molokai Light Station today. Photo by Rob Ratkowski, NPS.

for how their ‘ohana’s stories will be told and how Kalaupapa will be managed both now and in the future. In addition, some Hawaiians have a strong personal interest in the future of Kalaupapa because Kalaupapa is their ancestral homeland. These people are the ‘ohana of Hawaiians who were living on the land for hundreds of years before they were forcibly removed to make way for the Hansen’s disease settlement. The NPS actively engaged these people throughout the planning process. Their involvement was of utmost necessity in developing a successful plan.

In 2007, prior to the formal start of the GMP, the NPS conducted individual interviews with 26 patients to gather their ideas and thoughts for the future of Kalaupapa that could help guide the development of this park. These interviews provide important information about the patient’s ideas and wishes. As of January 2013, many of these patients have passed away. These interviews are an invaluable resource for the development of the GMP.

The NPS held dozens of public and stakeholder meetings throughout Hawai‘i to discuss the GMP. A detailed account of the public involvement process and the public comments received by the NPS are provided in "Chapter Six: Public Involvement."

Purpose of the Plan

The new general management plan will set the management philosophy for Kalaupapa National Historical Park for the next 15 to 20 years. The purposes of this GMP for Kalaupapa NHP are as follows:

- to develop the purpose, significance, and interpretive themes
- to describe any special mandates
- to clearly define desired resource conditions and visitor uses and experiences
- to provide guidance for NPS managers to use when making decisions about how to best protect Kalaupapa NHP’s resources, how to manage visitor use, how to provide quality visitor experiences, and what kinds of facilities are needed for management of the park
- to ensure that this plan for decision-making has been developed in consultation with the public, interested stakeholders and adopted by the NPS leadership after an adequate analysis of the benefits, impacts, and economic costs of alternative courses of action

Legislation establishing the National Park Service as an agency (the Organic Act of 1916) and the range of laws governing its management provides the fundamental direction for the administration of Kalaupapa NHP and other units and programs of the national park system. This general management plan/environmental impact statement (GMP/EIS) is intended to build on these laws and the legislation that established and governs Kalaupapa NHP to provide a vision for the park’s future. See “Appendix A: Kalaupapa National Historical Park Enabling Legislation.”

This draft GMP/EIS presents and analyzes four alternative future directions for the management of Kalaupapa National Historical Park. Alternative C is the National Park Service’s preferred alternative. See “Chapter 3: Alternatives”. The alternatives in this general management plan address desired future conditions that are not already mandated by law and policy and which must be determined through a planning process. Where law, policy, and regulations do not provide clear guidance, management decisions are based on the GMP, public concerns, and analysis of impacts of alternative courses of action, including long-term operational costs. Successful implementation of the GMP will result in the

long-term preservation of natural and cultural resources and an enhanced visitor experience. For more details on the laws and policies directing management actions, see “Appendix B: Pertinent Laws, Policies, and Procedures.” The potential environmental impacts of all alternatives have been identified and assessed. See “Chapter 5: Environmental Consequences”.

Actions directed by general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements for additional data or regulatory compliance, and competing priorities may delay implementation of many actions. Major or especially costly actions could be implemented 10 or more years into the future.

This general management plan does not describe how particular programs or projects should be prioritized or implemented. Those decisions would be addressed in future, more detailed implementation planning, which would be consistent with the approved GMP.



“Hui Hō‘ikaika I Ke Kino,” or “The Society that fortifies the body.” Gymnastics groups that also took care of funeral arrangements. Ca. 1901–06. Kalaupapa Historical Society Photo Collection.

Need for the Plan

Since the park’s designation in 1980, the NPS has not completed a GMP for Kalaupapa National Historical Park that meets NPS planning standards.

Management guidance has come from cooperative agreements, lease agreements, resources management documents, and from the Federal Advisory Commission and Patient Advisory Council. A formal GMP that meets NPS planning standards is necessary to address the changing conditions at Kalaupapa and the full range of resource management, visitor use, and operational issues.

Kalaupapa NHP needs guidance for a fundamental change in park management that will occur in the near future. As long as Hansen’s disease patients remain at Kalaupapa, park operations are subservient to services and health care for the patients, patient privacy, and maintaining patients’ lifestyles. The DOH has substantial control over activities in Kalaupapa. Once Kalaupapa is no longer a home and safe haven for the declining Hansen’s disease population, the fundamental management direction of the park will change. The DOH will leave, and it is expected that further management and operational functions and facilities will be turned over to the NPS.

Landownership, management, and potential boundary modifications are critical issues to address through a public planning process. Since the NPS owns less than 1% of the land within the park boundary, the GMP will need to provide guidance on future cooperative agreements with the State of Hawai‘i DLNR and DOT and the lease with DHHL.

Guidance for the management of the park’s cultural and natural resources is necessary for determining program goals, staffing levels, and desired future conditions for resources. The plan is also needed to address future visitor use at Kalaupapa. Today, most visitor regulations are geared toward protecting the privacy of the remaining Hansen’s disease patients. Once there is no longer a living patient community at Kalaupapa, the reasons for most visitor regulations will change. The GMP is critical to addressing visitor use issues which relate closely to access and transportation to and within the park, as well as conces-

sions activities that would be necessary for operating limited visitor facilities and services at Kalaupapa.

These decisions will affect the amount of visitor use and the types of visitor experiences, NPS operations, and land uses within Kalaupapa NHP. The exact amount and the conditions for particular uses will be determined in future implementation plans. This general management plan is a programmatic document that provides conceptual guidance to NPS managers as well as more detailed strategies and actions where appropriate. Subsequent implementation plans would focus on how to implement an activity or project called for by the general management plan. Implementation plans will include more extensive details and analyses that this general management plan does not address.

The scope of the plan also determines the scope of the environmental impact analysis. The final sections of this chapter discuss which impact topics will be analyzed and which have been dismissed because there will be no impacts.

Planning Issues and Concerns

The NPS staff, representatives from other agencies and organization, and interested members of the public, identified various issues and concerns about Kalaupapa National Historical Park during this planning process. This information assisted in determining the scope or range of issues to be addressed by this general management plan.

The following section outlines needs or challenges that are addressed in this general management plan and environmental impact statement. The alternatives provide strategies for addressing these issues within the context of Kalaupapa NHP’s purpose, significance, and special mandates.

Fundamental Changes in Park Purpose, Management, and Operations

The establishing legislation specifically states that “At such a time when there is no longer a resident patient community at Kalaupapa, the Secretary shall reevaluate the policies governing the management, administration, and public use of the park in order to identify any changes deemed appropriate.” This time is now on the horizon, and the patient community, partners, and NPS need and want to embark on this planning effort to address these imminent changes.

The GMP addresses changes to specific provisions in the establishing legislation that pertain to the special needs of the patients, when there is no longer a living patient community at Kalaupapa. These provisions were included in the establishing legislation to ensure the privacy of the patient community and to address specific needs and issues related to the patient community. These include limiting visitation to 100 people per day, patients’ first right of refusal to provide revenue-producing visitor services, and the taking and utilization of fish, wildlife, and plant resources. Once there is no longer a patient community at Kalaupapa, these provisions will be unnecessary for their original purposes, however some provisions could be maintained to meet desired future conditions.

This GMP provides guidance for Kalaupapa’s short-term and long-term futures. Short-term guidance is defined as the time period while Hansen’s disease patients are still living at Kalaupapa and supported by DOH operations. Long-term guidance is defined as a time period when the remaining patients are no longer living at Kalaupapa and the DOH ceases operations within the park. While resource management, visitor use, and operational issues are intertwined and connected, the GMP determines which issues can be addressed regardless of time period and which issues need to be addressed with both short-term and long-term guidance.

The GMP addresses the fundamental transition in operations, management, and overall direction. Currently, the DOH maintains the store, gas station, care facility, visitors’ quarters, and cafeteria for DOH workers, and the structures and landscape associated with the patient community and DOH workers. Management and operations would transition to the NPS, and the GMP provides guidance for this critical handover of responsibilities.

Law enforcement jurisdiction is an important issue facing the park. HRS 326 establishing the Kalaupapa Settlement and DOH’s role also provides provisions for the establishment and governance of Kalawao County, including the Kalaupapa peninsula and Waikolu Valley. The law states that the Department of

Health governs Kalawao County and that the sheriff is appointed by the Director of DOH. Once the DOH leaves Kalaupapa, these provisions in state law will need to be addressed and potentially revised.

The GMP evaluates the sufficiency of staffing levels in all programs within the park. The GMP identifies potential new staffing to implement the plan. Costs associated with new staff are addressed in the budget.

Cultural Resources

The GMP addresses the preservation and protection of cultural resources including hundreds of historic buildings, structures, and landscape features within the boundaries of the National Historic Landmark; cemeteries with over

1,000 gravestone markers; extensive archeological ruins that remain as evidence of occupation and use by Hawaiian inhabitants; and historic information, oral interviews, and many personal objects collected by the patients and NPS, which provide knowledge and insight into the lives of Kalaupapa residents. Contemporary threats to these resources include natural erosion, deterioration, exposure to the elements from climate and climate change, damage by termites and other pests, deferred maintenance, and loss due to encroachment by invasive and exotic plant species. A lack of prioritized planning and funding poses further threats to the preservation of these resources. The GMP provides general guidance for long-term resource management and stewardship treatment of these resources.

Natural Resources

Invasive, nonnative plants and animals are a severe problem at Kalaupapa and throughout the State of Hawai‘i. These nonnative species threaten the remaining native and endemic vegetation and animals. Vegetation such as Christmas berry, koa haole, and lantana predominate, and axis deer, feral goats and pigs, mongoose and rats threaten what remains of Hawai‘i’s natural heritage at Kalaupapa. The GMP provides guidance for management of nonnative invasive vegetation and animal species, including evaluating restoration activities and



Documenting endemic plants along the rocky cliffs of the peninsula. NPS photo.

programs. Hunting activities are considered in this GMP in the context of safety for residents and visitors and management by state agencies.

Marine resources include the shoreline areas to ¼ mile offshore surrounding the Kalaupapa peninsula, and the marine resources are in near pristine condition. The issue facing the NPS is how to preserve these marine resources.

Interpretation/Education

Education and interpretation about the Kalaupapa Settlement, its people, the treatment of those with Hansen’s disease, and the diversity of its cultural, natural and marine resources has been limited to date. To protect the privacy of patients and because of the existing law stating that income generating visitor services are to be done by patients, the NPS has had limited educational or interpretive programs. During public scoping, the public expressed a strong desire to see the Kalaupapa story told more widely and by the NPS. The GMP explores the expansion and development of interpretive and educational programs in the short and long term.

Visitor Use

Visitor use is controlled by laws and regulations which cap visitation to 100 people per day and require prior visitor registration, mandatory escorts, and purchase of a day tour package. No one under the age of 16 years old and no overnight stays are allowed for visitors without sponsors. The GMP considers what types of visitation are appropriate and allowable at Kalaupapa.

The GMP process guides the NPS in determining how best to provide a meaningful and memorable experience for those with family and community connections to Kalaupapa and to general visitors. Family members of patients past and present are concerned about their access to Kalaupapa and want preferential treatment for visitation. The graves of their family members are at Kalaupapa, and they want to ensure their ability to care for and visit the graves. How to manage this type of visitation in conjunction with regular visitors is addressed in the GMP. This planning process will help determine levels of access and define a variety of visitor experiences to interpret the key park interpretive themes.

The GMP explores options for the types and levels of suitable and feasible commercial operations. This includes concessions for running the store, gas station,

and visitor services, such as overnight accommodations, food service, tours, and transportation to and around Kalaupapa. This examination also addresses coordination among the many services provided to Kalaupapa.

Visitor facilities and NPS-sponsored educational and interpretive services are minimal. A few public restrooms, wayside exhibits, and facilities related to concessions operations are the only visitor facilities. To meet the needs of future visitors, the GMP addresses visitor facilities.

Transportation, Access, and Circulation

Access to the site is a significant issue. People access Kalaupapa by the pali (cliff) trail, by airplane, and a small number of people access Kalaupapa Settlement by boat. Some people also access the park via the Waikolu Forest Reserve and the Pu‘u Ali‘i Natural Area Reserves for hunting in that area. Kalaupapa’s remoteness and difficult access limit the numbers and types of visitors who may want to come to the site. The GMP addresses access issues, potentially through concessions operations and/or agreements with partners, such as the Department of Transportation.

Transportation within the settlement and peninsula for visitors is via old school buses operated by Damien Tours for visitors and via personal and government vehicles for patients and workers.

Gas and diesel are brought in annually on the barge, and at times during the year are rationed to maintain adequate supply. Alternative transportation is explored in the GMP for improved energy efficiency and lower carbon emissions, such as hybrid vehicles, bicycles, and potential regulations for vehicle use.

There is also increased pressure for military use of the airport and the potential for overflights, including scenic overflights, which could impact the soundscapes, historic character of Kalaupapa, and natural resources.

Facilities

The GMP guides facilities management programs, addressing major needs and changes for the preservation, maintenance, and construction of buildings and infrastructure to serve visitors, park operations and administration, housing, and concessions.

Climate Change

Global climate change and its effects on cultural and natural resources is an issue that needs to be considered within a planning and National Environmental Policy Act and National Historic Preservation Act framework.

Facilities and vehicles, including their operation, construction, and maintenance, contribute significantly to energy use and carbon emissions. Kalaupapa currently uses electricity generated by diesel fuel. Gasoline fuel is barged in from Honolulu annually. Exploring alternative forms of energy, such as wind and solar power, and sustainable best practices in order to reduce the park’s carbon footprint are included in the GMP.

Boundary Issues

The GMP addresses future lease and cooperative agreements with the Department of Hawaiian Home Lands, Department of Land and Natural Resources, Department of Health, Department of Transportation, the Roman Catholic Church, the United Church of Christ, and the Meyer Ranch private inholding.

A key issue to address is the 50 year lease agreement with the Department of Hawaiian Home Lands (DHHL) which needs to be renewed in 2041 or consider a land exchange or acquisition. The NPS currently pays DHHL \$230,000 annually under the lease agreement and has already invested over \$40 million for buildings, structures, and infrastructure maintenance and improvements. Because the DOH has encumbrances on the DHHL land, the annual lease amount is substantially less than what could be paid for the entire parcel. Upon DOH’s departure and relinquishment of the encumbrances, the annual lease fee would need renegotiation. The actual ownership of improvements on the property needs to be determined as part of this planning process. Under the terms of the agreement, DHHL would need to reimburse the NPS for these investments and would not be paid an annual lease fee if DHHL intended to allow and support native

Hawaiian homesteading at Kalaupapa. DHHL has openly stated that it supports the preservation of Kalaupapa NHP and does not have plans for native Hawaiian homesteading at Kalaupapa in the future, primarily because of cost and limited access. The GMP offers an opportunity to explore these ownership, boundary, and management issues in the context of a public planning process.

DHHL has identified a “Native Hawaiian Healing and Wellness Center at Kalaupapa” in their 2007 *Island of Molokai Regional Plan*. There are individual and collective native Hawaiian groups who would like to explore the opportunity to homestead at Kalaupapa and in the Waikolu Valley area of Kalaupapa in the future. There may also be the possibility of an arrangement with DHHL for some limited homesteading activities that could support the NPS’s mission of preservation and compatible visitor use at Kalaupapa. Proceeding through a planning process provides an opportunity to share information about the terms of the lease agreement and explore a range of alternatives to address this issue.

In 2000, the NPS completed a boundary study of the North Shore Cliffs on Molokai as a requirement of Public Law 105-355, entitled “Studies of potential national park system units in Hawai‘i” enacted on November 6, 1998. The study determined that the area met both suitability and feasibility standards for inclusion in the NPS system. The findings of the study were not widely supported locally when the study was completed nearly 10 years ago. Some landowners may be willing sellers, while others may not. The GMP, through the public planning process, offers an opportunity to share the findings of the study with the public and explore boundary modifications.

Partnerships

The planning process and the GMP affords a unique opportunity for the park to connect to the patients and their descendants’ community, the Kalaupapa



View of ‘Okala island from Waikolu Valley Overlook. NPS photo.

community, topside Molokai, the State of Hawai‘i interests, the Native Hawaiian community, and other interested parties to prepare for the major changes that will be occurring at Kalaupapa. Through this planning process, the NPS together with its partners and the public is exploring the many ways to tell the whole story of this isolated peninsula, and to map out the long-term future of the park. These efforts can complement and integrate varying perspectives to protect park resources through a comprehensive approach that involves partners and the public in the future management of the site.

Issues and Concerns Not Addressed

Not all of the issues or concerns raised by the public are included in this general management plan. Issues that were raised by the public were not considered if they are already prescribed by law, regulation, or policy; if they would be in violation of law, regulation, or policy; or if they were at a level that was too detailed for a general management plan and are more appropriately addressed in subsequent planning documents.

Impact Topics: Resources and Values at Stake in the Planning Process

Impact topics allow comparison of the environmental consequences of implementing each alternative. These impact topics were identified based on federal laws and other legal requirements, the Council on Environmental Quality’s guidelines for implementing the National Environmental Policy Act, NPS management policies, subject-matter expertise and knowledge of limited or easily impacted resources, and issues/concerns expressed by other agencies or members of the public during scoping. Impact topics were developed to focus the environmental analysis and to ensure that alternatives were evaluated against relevant topics. A brief rationale for the selection of the impact topics that will be analyzed in the environmental consequences chapter is given below, as well as a more detailed justification for dismissing other topics from further consideration.

Impact Topics to be Considered

The following impact topics will be retained for analysis due to the potential of management alternatives to affect these resources and values, either beneficially or adversely:

- Cultural Resources
- Ethnographic Resources (address uses, including gathering, fishing, and hunting)
- Archeological Resources
- Historic Buildings and Structures
- Cultural Landscape
- Museum Collections
- Natural Resources
- Soundscapes
- Dark Night Sky/Lightscaapes
- Geological Resources and Processes, Including Soils
- Water Resources and Hydrologic Processes
- Marine Resources—Coastal Reef, habitats, wildlife
- Biological Resources—habitat, wildlife, and vegetation
- Special Status Species—Wildlife and Vegetation
- Climate Change and Sustainable Practices
- Visitor Use and Experience
- Interpretation and Education (curriculum-based education and outreach programs)
- Visitor Opportunities, Services, and Facilities
- Visitation (number of visitors)
- Access and Transportation—Roads, Air, Trail, Sea
- Management and Operations

Impact Topics Dismissed from Further Consideration

Some potential impact topics were considered and determined not relevant to the development of this general management plan for Kalaupapa NHP because either implementing the alternatives would have no effect or a negligible effect on the topic or resource or the resource does not occur in the park. The specific topics dismissed from further analysis are discussed below.

Energy Requirements and Conservation Potential

Alternatives in the general management plan, including the preferred alternative, could result in new facilities with inherent energy needs. In all of these

alternatives, new facilities would be designed with long-term sustainability in mind. The National Park Service has adopted the concept of sustainable design as a guiding principle of facility planning and development (Management Policies 9.1.1.6). The objectives of sustainability are to design facilities to minimize adverse effects on natural and cultural resources, to be compatible with their environmental setting, and to require the least amount of nonrenewable fuels and energy.

The action alternatives could result in an increased energy need, but this need is expected to be negligible when seen in a regional context. Thus, this topic is dismissed from further analysis.

Environmental Justice

On February 11, 1994, President William J. Clinton signed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This order requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs/policies on minorities and low-income populations and communities. The Secretary of the Interior established Department of the Interior policy under this order in an August 17, 1994, memorandum. This memorandum directs all bureau and office heads to consider the impacts of their actions and inactions on minority and low-income populations and communities; to consider the equity of the distribution of benefits and risks of those decisions; and to ensure meaningful participation by minority and low-income populations in the department’s wide range of activities where health and safety are involved.

The Environmental Protection Agency’s Office of Environmental Justice defines environmental justice as:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

The goal of this “fair treatment” is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

In responding to this executive order two questions are asked and answered as the major part of the analysis:

1. Does the potentially affected community include minority and/or low-income populations?
2. Are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community and/or tribal resources?

Kalawao County does contain both minority and low-income populations; however, environmental justice is dismissed as an impact topic for the following reasons:

NPS staff and the planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.

Implementation of the proposed alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population.

The impacts associated with the preferred alternative would not result in any identified effects that would be specific to any minority or low-income population or community.

NPS staff and the planning team have consulted and worked with the affected Native Hawaiian organizations and will continue to do so in cooperative efforts to resolve any problems that may occur. In addition, the planning team did not identify any negative or adverse effects that would disproportionately and adversely affect Native Hawaiian organizations.

Based on the above information and the requirements of Executive Order 12898, environmental justice was ruled out as an impact topic to be further evaluated in this document.

Indian Trust Lands

The National Park Service does not manage or administer Indian trust assets, nor are any lands comprising Kalaupapa National Historical Park held in trust by the Secretary of the Interior solely for the benefit of American Indians due to their status as American Indians. Therefore, this topic was dismissed from further analysis.

Natural or Depletable Resource Requirements and Conservation Potential

Consideration of these topics is required by 40 Code of Federal Regulations (CFR) 1502.16. The National Park Service has adopted the concept of sustainable design as a guiding principle of facility planning and development (NPS Management Policies 9.1.1.6. The objectives of sustainability are to design facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting and to maintain and encourage biodiversity, to operate and maintain facilities to promote their sustainability, and to demonstrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is the concept of living within the environment with the least impact on the environment.

None of the alternatives would substantially affect the park’s energy requirements because any rehabilitated or new facilities would take advantage of energy conservation methods and materials. Through sustainable design concepts and other resource management principles, the alternatives analyzed in this document would attempt to conserve natural or depletable resources. Therefore, this topic was dismissed from further analysis.

Prime or Unique Farmlands

In August 1980 the Council on Environmental Quality directed federal agencies to assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture’s Natural Resource Conservation Service as prime or unique. Prime farmland is defined as soil that produces general crops such

as common foods, forage, fiber, and oil seed. Unique farmland soils produce specialty crops such as specific fruits, vegetables, and nuts.

According to the National Resource Conservation Service there are no unique farmlands in Kalaupapa National Historical Park. Private agriculture is not allowed in Kalaupapa NHP, so this type of land use would not be affected by this plan. Therefore, there would be no impacts on prime or unique farmlands and the topic is being dismissed from further analysis in this document

Urban Quality and Design of the Built Environment

Consideration of this topic is required by the Code of Federal Regulations (CFR) 40 CFR 1502.16. The quality of urban areas is not a concern in this planning project. Throughout Kalaupapa NHP, vernacular architecture and park-compatible design would be taken into consideration for new structures built under all of the action alternatives. Emphasis would be placed on designs, materials and colors that are compatible and do not detract from the natural and built environment. Therefore, adverse impacts are anticipated to be negligible and no further consideration of this topic is necessary.

Conformity with Local Land Use Plans

The fundamental land use of Kalaupapa NHP and actions proposed in the alternatives would not be in conflict with any local or state land use plans,

policies, or controls for the area.

The creation of additional recreation and visitor service opportunities in Kalaupapa NHP, as proposed in the alternatives, would be consistent with the existing land uses in Kalaupapa NHP or local (non-NPS) land use plans. Therefore, this topic is dismissed from further consideration.



Visitors’ Pavilion (Long House), 2012. NPS photo.

Relationship of Other Planning Efforts to the GMP

The following plans, agreements, and related documents have influenced the preparation of this general management plan, or may be modified based on the information in this general management pan. The following list is not all inclusive. Rather, it represents the plans and documents most relevant to the management actions, issues, policies, and procedures addressed in this GMP.

National Park Service Plans and Documents

General Management Plan for Kalaupapa National Historical Park (1980)

The plan provided the framework and objectives to manage the park while patients are still present.

Cooperative Agreements

Cooperative agreements have been established with multiple government and private organizations that have some connection to landownership, management, or care of the patients. The NPS maintains cooperative agreements with the State of Hawai’i Department of Health, Department of Land and Natural Resources, Department of Transportation, and with religious institutions. The NPS also maintains a lease agreement with the Department of Hawaiian Home Lands. See “Chapter 2: Foundation for Planning and Management, Long-term Agreements” for more specific information about the agreements.

Fire Management Plan (2012)

The plan provides the regulatory and management requirements to respond to the park’s natural and cultural resource objectives and to address the safety of park residents, staff, and visitors.

Emergency Management Plan

Emergency management plans exist for emergency situations (e.g. tsunami evacuation plan) and resources (e.g. emergency management plan for museum collections).

Kalaupapa Dock Structures Critical Repair Project (2012)

The purpose of the project was to provide safe, operable, and reliable dock structures to support continued barge service that is essential to support the NPS and DOH operations necessary to meet the ongoing needs of the park and community. The completed project made a number of critical repairs to the pier structure, bulkhead, and breakwater in order to maintain service via a small barge.

Kalaupapa Memorial (2011)

The document addresses impacts and alternatives for the construction of a memorial to commemorate Kalaupapa patients. On March 30, 2009, P.L. 111-11 authorized Ka ‘Ohana O Kalaupapa to establish the Kalaupapa Memorial within the boundaries of Kalaupapa NHP. The Memorial will be located near the Old Baldwin Home for Boys in Kalawao and will list the names of the estimated 8,000 people who were taken from their families and sent to Kalaupapa.

Museum Management Plan (2006)

The plan provides recommendations and guidelines to better manage, preserve, and improve tools the park’s archives, library and museum collections.

Resource Management Plan (2000)

The plan guides management of natural and cultural resources to protect, restore, and manage these resources.

Solid Waste Management Plan (2006)

The plan directs improved handling and disposal of solid waste at Kalaupapa that results in minimal impacts to the land, water and people of Kalaupapa.

Related Plans and Documents

A Strategic Plan for Transition at Kalaupapa Settlement (1990)

The report was completed by the Pacific Basin Development Council in 1990 at the direction of a Hawai’i State Senate resolution to develop a transition plan to facilitate an orderly, deliberately sensitive transition of certain State responsibilities to the Kalaupapa NHP.

Ala Pālā‘au Comprehensive Management Plan (2009)

The plan was completed by Ke ‘Aupuni Lokahi Inc., a nonprofit entity and governance board for the Molokai Enterprise Community, through a grant from the Hawai‘i Tourism. The plan provides the background, partnerships, and analysis of a site-based educational project that focuses on the cultural and natural resources of Pālā‘au State Park.

Kalaupapa Mutual Aid Compact (2010)

The State of Hawai‘i Department of Health (DOH) and the County of Maui entered into a mutual aid compact for fire and law enforcement assistance at the Kalaupapa Settlement in the County of Kalawao.

Molokai Forest Reserve Management Plan (2009)

The plan was prepared by the state Department of Land and Natural Resources, Division of Forestry and Wildlife. The plan provides guidance for management actions and subsequent compliance, funding priorities, and prioritizes implementation of management activities in the Molokai Forest Reserve.

Molokai: Future of a Hawaiian Island (2008)

The plan, prepared by members of the Molokai community, addresses culture, education, agriculture/aquaculture, environment, subsistence, tourism, and governance on Molokai.



A rainbow appears over Nihoa and the Kalaupapa cliffs. NPS photo.

Pu‘u Ali‘i Natural Area Reserve Management Plan (1991)

The plan provides guidance and recommendations for management actions including ungulate control, nonnative plant control, monitoring efforts, education and volunteer support, and access improvement to facilitate management, education, and volunteer opportunities.

Pelekunu Preserve Long-range Management Plan, Molokai, Hawai‘i (2003)

The plan, developed by the Nature Conservancy of Hawai‘i, addresses ungulate control, weed control, natural resource monitoring and research, community outreach, and support for watershed partnership work in the Pelekunu watershed.

State of Hawai‘i Department of Hawaiian Home Lands Molokai Island Plan (2005)

The plan provides guidelines for defining and implementing the vision and partnerships that support the beneficiaries and homestead community. The plan zoned areas of DHHL’s lands at Kalaupapa. They are zoned: Special district for the historical settlement area (621 acres), Community Use for two areas on the peninsula (7 acres), and Conservation for the cliffs (609 acres).

Next Steps in the Planning Process

After the distribution of the draft GMP/EIS there will be a 60-day public review and comment period, after which the NPS planning team will evaluate comments from other agencies, organizations, businesses, and individuals regarding the draft plan. The planning team will then incorporate appropriate changes to produce a final general management plan and environmental impact statement.

Section 106 review may conclude with a finding of “no adverse effect” to historic properties. This will be done in consultation with the Hawai‘i State Historic Preservation Division, the Advisory Council on Historic Preservation and other consulting parties. In the event that a finding of “adverse effect” to historic properties is determined, the NPS will develop ways to resolve the adverse effect in the final GMP/EIS and record of decision.

The final plan will include letters from governmental agencies, any substantive comments on the draft document, and NPS responses to those comments. Following distribution of the final GMP/EIS and a 30-day no-action period, a record of decision approving the final plan will be signed by the NPS regional director. The record of decision documents the NPS selection of an alternative for implementation. With the signing of the record of decision, and its publication in the *Federal Register*, the plan can then be implemented.

Implementation of the Plan

Once the general management planning process is completed, the identified alternative would become the new management plan for Kalaupapa NHP and would be implemented in phases over the next 15–20 years and potentially longer.

Implementation of the approved GMP will depend on funding. The approval of a plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation of the approved plan may be many years in the future.

Implementation of the approved plan also could be affected by other factors, such as changes in NPS staffing and funding, visitor use patterns, management

agreements among partner agencies, and unanticipated environmental changes. Once the general management plan has been approved, additional feasibility studies and more detailed site specific documentation, planning, and compliance would be completed, as appropriate, before several proposed actions could be carried out. Additionally, all of the alternatives were developed on the assumption that certain mitigating actions would be incorporated into the proposed actions in order to reduce the degree of adverse impacts.

The general management plan does not describe how particular programs or projects should be prioritized or implemented. Those decisions will be addressed during the more detailed planning associated with strategic plans, implementation plans, or other plans.



A view down Damien Road in Kalawao. NPS photo.



Lava rocks on beach overlooking 'Awahua Bay. Photo by Jeffrey Mallin.



Foundation 2



Kalawao band, ca. 1900. Kalaupapa Historical Society Photo Collection.

This chapter contains elements of the “foundation document” for Kalaupapa National Historical Park. The foundation document provides the underlying basis for this general management plan. The foundation document is a shared understanding of the park’s purpose, significance, resources and values, and interpretive themes. These statements identify Kalaupapa’s unique characteristics and what is most important about Kalaupapa National Historical Park.

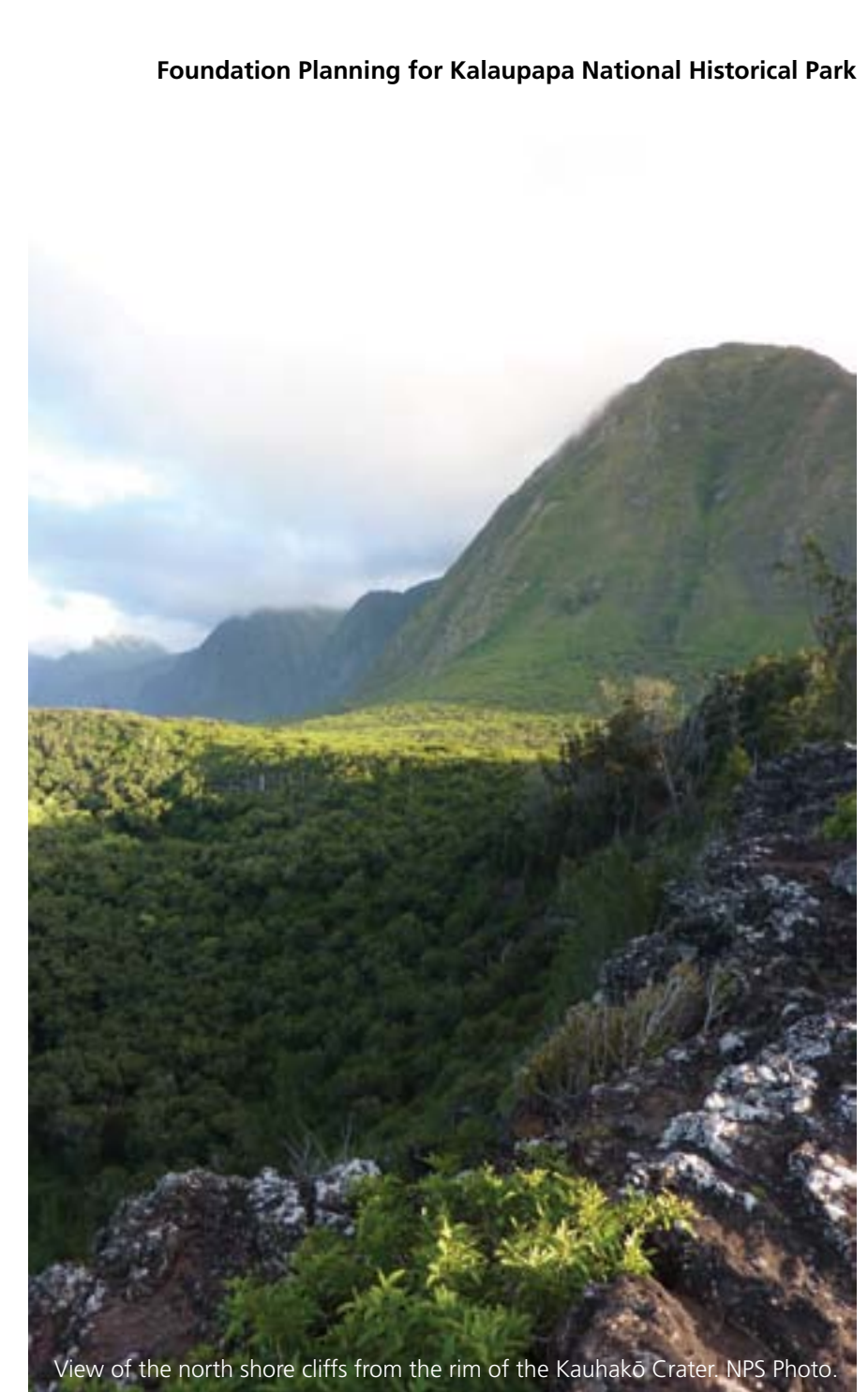
The foundation for future planning and management is generally developed early in the general management planning process. A foundation document can be used in all aspects of park management to ensure that the most important objectives are accomplished before turning to items that are also important, but not directly critical to achieving the park purpose and maintaining its significance.

What is Included in this Foundation Document?

The foundation document includes relatively stable components that will not change much over time. These components are the legislated **purpose** of the park unit, the **significance** it holds, what the focus of its interpretation (**interpretive themes**) and education program should be, and its **fundamental resources and values**. The **special mandates** section includes the legal requirements that must be followed in the management of the park unit.

Foundation Planning for Kalaupapa National Historical Park

Components of the foundation document for Kalaupapa NHP were developed at a workshop in October 2006 attended by park and regional staff, as well as other individuals associated with the history and management of the park. The foundation document components were refined by the planning team during the general management plan (GMP) scoping process in 2009. The full foundation document for Kalaupapa NHP, including an assessment of planning and data needs, will be produced as part of this planning effort.



View of the north shore cliffs from the rim of the Kauhakō Crater. NPS Photo.



Clockwise from top left: 1. View of ‘Ōkala island from Kalawao. Date unknown. Photo courtesy of Bishop Museum. 2. Siloama Church, July 11, 1905. Photo by Alonzo Gartley, courtesy of Bishop Museum. 3. Interior of St. Philomena Church. NPS photo. 4. Paschoal Hall, previously known as the Kalaupapa Social Hall. NPS photo.



Purpose

A park purpose is a statement of why Congress and/or the president established a unit of the national park system. A purpose statement provides the most fundamental criteria against which the appropriateness of all planning recommendations, operational decisions, and actions are tested. The purpose of the park is grounded in a thorough analysis of the park’s legislation (or executive order) and legislative history. A park purpose statement goes beyond a restatement of the law and details shared assumptions about what the law means in terms specific to the park unit.

Purpose of the National Park System

To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

E mālama i ka ‘ikenā a me ko laila pono kuluma a pono makanāhele i mea e ho‘onānea ai ko kēia wā i ia wahi ma ke ‘ano e kanaha‘i ‘ole iho ai ia mau pono no ka pōmaika‘i o nā hanauna e hiki mai ana.

Purpose of Kalaupapa National Historical Park

Kalaupapa National Historical Park honors the mo‘olelo (story) of the isolated Hansen’s disease (leprosy) community by preserving and interpreting its site and values. The historical park also tells the story of the rich Hawaiian culture and traditions at Kalaupapa that go back at least 900 years.

Pūlama ‘o Kalaupapa National Historical Park i ka mo‘olelo pana nui o ke kaiāulu o ka po‘e ma‘i ho‘oka‘awale ma o ka mālama ‘ana iho a me ka ho‘omaopopo ‘ana aku i ia wahi a me nā pono ola o laila. Hō‘ike‘ike pū ka pāka i ka mo‘olelo o ka nohona me nā loina Hawai‘i i ho‘omau ‘ia a‘ela ma Kalaupapa no nā makahiki he ‘eiwa hanele a ‘oi.



Kalaupapa baseball game, 1950s. Kalaupapa Historical Society Photo Collection.



Top: David Kupele taking mail and other items up the trail, 1930s. Photo courtesy of IDEA Photos. Bottom: One of the many dry set rock walls on the coastal peninsula. NPS photo

Significance

Park significance statements express why the park’s resources and values are important enough to warrant national park designation. Statements of the park’s significance describe why an area is important within a global, national, regional, or systemwide context and are directly linked to the purpose of the park unit. Park unit significance statements are substantiated by data or consensus and reflect the most current scientific or scholarly inquiry and cultural perceptions, which may have changed since the park unit’s establishment.

Significance Statements for Kalaupapa National Historical Park

Kalaupapa National Historical Park preserves the only intact historic institutional settlement in the United States created for the sole purpose of isolating Hansen’s disease (leprosy) patients from the rest of society.

Kalaupapa National Historical Park’s surviving (and deceased) Hansen’s disease population, with its material culture, oral histories, and intact physical community, is one of the only of its kind in the United States.

Kalaupapa National Historical Park is the site of renowned work by Saint Damien de Veuster, Saint Marianne Cope, and Brother Dutton, bringing international attention to leprosy and its treatment. Their work inspired many religious leaders, medical professionals and lay people to serve the Hansen’s disease community.

Kalaupapa National Historical Park presents an exemplary geologic and scenic panorama of towering sea cliffs and a flat leaf-shaped peninsula that were created by a cataclysmic landslide and subsequent volcanic eruption.

From mauka to makai (mountain top to coast line) Kalaupapa National Historical Park preserves and interprets some of the last remaining examples of fragile Hawaiian Island plant and animal communities found no where else in the world.

Mālama ‘o Kalaupapa National Historical Park i ke kaiāulu ho‘okahi i koe ma ‘Amelika i ho‘okumu mākia ‘ia no ka ho‘okaupale ‘ana i ka po‘e ma‘i ho‘oka‘awale mai ka lehulehu aku.

‘O ka heluna kanaka ma‘i ho‘oka‘awale e ola nei (a i hala aku) ma Kalaupapa National Historical Park, me nā mau pono nohona, mo‘olelo pilikino a kaiāulu e kū nei, ‘o ia ka mea ho‘okahi o ia ‘ano ma ‘Amelika Huipū‘ia.

‘O Kalaupapa National Historical Park kahi o ka hana kaulana a Sāna Kamiano De Veuster, Sāna Meleana Cope, me Kahu Dutton, kahi mea i ku‘i ai ka lono e pili ana i ka ma‘i ho‘oka‘awale a me ka lapa‘au ‘ana. Na kā lākou hana i ho‘oulu i ka lawelawe ‘ana a nā alaka‘i ho‘omana, nā kauka a me ka lehulehu i ke kaiāulu ma‘i ho‘oka‘awale.

Kū ka ‘ikena o nā pali kūnihi ma ka lihi o ka ‘anemoku palaha ma Kalaupapa National Historical Park i la‘ana maika‘i o kahi i hane‘e ‘ino ai ka mauna a hū hou auane‘i ka pele.

Mai uka a i kai, mālama a ho‘omaopopo aku ‘o Kalaupapa National Historical Park i kekahi o nā la‘ana hope loa o nā kaiameola Hawai‘i pōhae i ‘ike ‘ole ‘ia ma kahi ‘ē o ke ao nei.

Kalaupapa National Historical Park preserves robust and diverse nearshore marine resources due to the geographic remoteness, locally restricted access, and controlled subsistence practices.

Kalaupapa National Historical Park’s number of archaeological resources, vast variety of site types, its extensive time range of habitation and land use, and the exceptional preservation of its archaeological sites combine to make the park one of the richest and most valuable archaeological complexes in Hawai‘i.

Many who come to Kalaupapa recognize an intense, nearly tangible, mana or powerful force that Hawaiian peoples find in all things. The ‘āina (land), a vital source that links us to spirit is sacred and becomes our ‘aumakua (guide) that connects us to the continued presence of all who lived out their lives on this peninsula. The ‘āina’s mana (spiritual essence) connects us to each other and to spirit.



Clockwise from top right: 1. View from the Kalaupapa pier. 2. Gravesite of Saint Marianne. 3. Kalaupapa residents practice a hula performance for the Saint Damien celebration. NPS photos.

Mamuli o ka mamao a ka‘awale o ia wahi, a mamuli ho‘i o ke kāohi ‘ana i ka hele wale me nā hana e hiki ai, mālama ‘o Kalaupapa National Historical Park i ka ikaika me ke ‘ano makawalu o nā kumuwaiwai pili kai.

‘O Kalaupapa National Historical Park kekahi o nā kahua hulikoena waiwai loa ma Hawai‘i nei mamuli o ka helu o nā pono hu‘ea o laila, ka nui o nā ‘ano wahi hulikoena, ka lō‘ihi o ko kānaka noho a hana ‘ana ma ia ‘āina, a me ke kūlana i mālama ‘ia ai nā kahua.

Ho‘omaopopo pinepine ihola ka po‘e e kipa ana ma Kalaupapa i ka mana o ia wahi, ia mea a ka Hawai‘i e ‘ike ai ma nā mea a pau o ke ao. He kumu pono ka ‘āina a he mea la‘ahia e pili ai kākou i ka po‘e o mua i noho a ho‘ōla i ia honua kanaka. ‘O ka mana o ka ‘āina ka mea e pili mau ai kākou kekahi i kekahi, a pili ho‘i i ka mauli ola.





Clockwise from top left: 1. Old bakery chimney. NPS photo. 2. Opening of the new road from airport to near Oceanview Pavilion in the late 1950s. Kalaupapa Historical Society Photo Collection. 3. ‘Ama’u, *Sadleria pallida*. NPS photo.

Interpretive Themes

Interpretive themes connect park unit resources to relevant ideas, meanings, concepts, contexts, beliefs, and values. They support the desired interpretive outcome of increasing visitor understanding and appreciation of the significances of the park’s resources. Interpretive themes are based upon park purpose and significance. They provide the foundation on which the park unit’s educational and interpretive programs are based.

Interpretive Themes for Kalaupapa National Historical Park

The architecture, landscapes, and archeology of the peninsula reflect an evolution of the settlement from barely surviving patients with Hansen’s disease at Kalawao to a highly organized medical and social community at Kalaupapa.

Saint Damien devoted himself to improving patient lives at Kalawao both physically and spiritually, giving them protection, comfort, and hope. Saint Marianne and Brother Dutton continued the work of Saint Damien. Their selfless devotion to people in need continues to inspire us today.

Hō’ike nā hale, nā ‘ikena, a me nā koena hu’ea o kēia ‘anemoku i ka loli ‘ana a’e o ka nohona mai kahi i ola māhunehune ai ka po’e ma’i ma Kalawao a i kaiāulu i kūkulu pono ‘ia no ka ho’ōla kanaka ma Kalaupapa.

Molia ‘ia ke ola o Sāna Kamiano i ka ho’omaika’i ‘ana i ke ola ‘uhane me ke olakino o ka po’e ma’i o Kalawao, e hā’awi ana iā lākou i ka malu, ka ‘olu, a me ka mana’olana. Ho’omau aku ‘o Sāna Meleana a me Kahu Dutton i ka hana a Sāna Kamiano. ‘O ko lākou molia ‘ana aku iā lākou iho i ka pono o ka po’e nele kahi mea e ho’oulu mau mai ana iā kou i kēia lā.



Perceived today as a scenic Hawaiian paradise, Molokai’s dramatic North Shore Cliffs and flat Kalaupapa peninsula are the result of numerous geologic forces still at work throughout the Pacific archipelagos. These geologic features created a natural prison for isolating people with Hansen’s disease.

Kalaupapa’s plant and animal communities, including the seabird colonies and Lo’ulu (*Pritchardia hillebrandii*) forest, hearken back to the pre-contact condition of the Hawaiian Islands. The rarity of these surviving fragile populations is a reminder of how much has been lost.

Kalaupapa National Historical Park’s unique and thriving reef environment reminds us of what these areas were once like throughout Hawai’i, and it serves as a potential source of replenishment for degraded reef systems around the islands.

Kalaupapa’s unique site preservation and variety of site types together with its long history of subsistence and its geographic location allow us to appreciate the ways in which native Hawaiian communities flourished in the Kalaupapa region and its valleys for hundreds of years. Their ingenuity, work ethic, and adaptation to the harsh windswept and weathered environment reflect important components of Hawaiian history and traditional cultural practices.

Kalaupapa has an amplified sense of power and sacredness by virtue of the events, circumstances, and peoples who lived and died there. The sheer numbers of patients who are buried at Kalaupapa create a sense of kuleana—the cultural responsibility to care for the bones of the ancestors. In turn, the ancestors watch over this ‘āina and protect it. Kalaupapa’s isolation and beauty offers healing and restoration of the human spirit.

‘Ike ‘ia i kēia lā ma ke ‘ano he palekaiko Hawai’i nani loa, he hopena nā pali o Moloka’i a me ka ‘anemoku ‘o Kalaupapa a nā hana honua e noke mau nei ma nā pae moku Pākīpika. Ua kū nō nā hi’ona o ia ‘āina ma ke ‘ano he wahi no ka ho’opale ‘ana aku i ka po’e ma’i ho’oka’awale.

Kuhikuhi maila nā kaiameaola o Kalaupapa, pū no me nā kaiāulu manu kai me ka ulu Loulu, i ke kūlana o kēia pae ‘āina ma mua o ka pili mau ‘ana me ko waho. Hō’ike a ho’omana’o iholā ke ‘ano kāka’ikahi o kēia mau kaiameaola pōhae i ka nui o nā mea i lilo a nalo loa aku.

Ulu a māhuahua ka ‘āpapa o Kalaupapa National Historical Park, e hō’ike ana i ke ‘ano i laha wale i ke au i hala a puni nā moku, a e kū ana paha i kumuwaiwai e ho’oulu hou ai i nā ‘āpapa i hō’ino ‘ia ma ka pae ‘āina.

Ulu ka mahalo i nā ‘ano i kupuohi ai nā kaiāulu ‘ōiwi Hawai’i o Kalaupapa mā no nā kenekūlia he nui, ‘oiāi ‘o ka ‘ike loea, ka hana nui, a me ka ho’okohu ‘ana i ka hana kekahi mau māhele ko’iko’i o ka mo’olelo Hawai’i a me nā hana kuluma o nā kānaka ‘ōiwi i pili loa i ka nohona ma ia lae makani. ‘Ike ‘ia kēia mau mea mamuli o nui o nā kahua like ‘ole i mālama ‘ia a me ke au lō’ihi o ka nohona Hawai’i ma Kalaupapa a me nā awāwa pili.

Uluhia ka mana, ka ‘ihi’ihi a me ke ‘ano la’a o Kalaupapa mamuli o nā hanana, nā kūlana, a me nā kānaka i mālama ‘ia i laila mai kikilo loa mai. ‘O ka helu nui o nā kānaka i kanu ‘ia ma Kalaupapa kahi mea e ulu a’e ai ke kuleana - ka pono e mālama i nā iwi kūpuna. A kō ia kuleana, na ia po’e kūpuna e kia’i a mālama mai i ka ‘āina nei. Ho’ōla, ho’oulu, a ho’opohala ka nani a me ke kuaehu o Kalaupapa i ka mauila o nā kānaka.



Top: Visitors taking part in a guided tour of Kalaupapa Settlement by Damien Tours. Center: Leaves taken from the Kukui Nut Tree were braided to create a head lei worn by NPS staff during the Hāpai Pōhaku Opening Ceremony, 2011. Bottom: Volunteers help restore the park’s ecosystem by planting native species that once populated the peninsula. NPS photos.

Fundamental Resources and Values

Fundamental resources and values are the most important elements, ideas, or concepts to be communicated to the public about a park unit. They warrant primary consideration during planning and management because they are critical to achieving the park’s purpose and maintaining its significance. They provide a valuable focus throughout the planning process and the life of the plan and may include systems, processes, features, visitor experiences, stories, scenes, sounds, or other resources and values. They are the reasons for data collection, planning issues, management prescriptions, impact assessments, and value analyses.

Historic Buildings, Structures, Cultural Landscape, and Archeological Features Associated with the Hansen’s Disease Settlement

Kalaupapa NHP includes historic buildings, structures, cultural landscape and archeological features associated with the Hansen’s disease settlement dating from 1869 to the present, most of which contribute to the Kalaupapa Leprosy Settlement National Historic Landmark.

Museum Collections

The park maintains over 200,000 museum objects and archival materials that document Kalaupapa’s culture, history, and natural resources.

Native Hawaiian Archeological Resources

The park contains archeological resources that document at least 900 years of native Hawaiian history, associated with habitation, burial, and subsistence. Due to its physical isolation and lack of modern development on the peninsula, it is one of the most intact archeological complexes in Hawaii.

Patients

The patients past and present, represented through their stories, traditions, and memorabilia, are some of the park’s most valuable resources. Their presence at Kalaupapa can be experienced through the physical resources that remind us of them and the intangible feelings of their presence and spirit that impart a sense of sacredness to Kalaupapa.

Saint Damien, Saint Marianne, Brother Dutton, and Kōkua (patient helpers) – Their Work with Hansen’s Disease Patients

The renowned work by Saint Damien de Veuster, Saint Marianne Cope, Brother Dutton, and other kokua to care for those afflicted with Hansen’s disease are represented in stories, museum collections, and sites and structures at Kalaupapa (such as St. Philomena Church and cemetery, Bishop Home for Girls, Baldwin Home for Boys, Saint Damien’s gravesite and monuments, Gravesite of Saint Marianne, and Gravesite of Brother Dutton).

Stories, Oral Histories, and Mana

Preserving and sharing the stories of those who lived, died, and are buried at Kalaupapa, also preserves their spirits, adding depth and dimension to the greater story to be told. The pervading presence of spirits can be felt and witnessed by visitors and residents alike and are a testament to the special sacredness and mana of Kalaupapa. The stories of ‘ohana who were left behind are equally compelling and offer lessons in forgiveness, love, hope, inspiration, and the perseverance of human spirit.

Educational Values

The park provides opportunities to learn and be inspired by Kalaupapa’s native Hawaiian history, the Hansen’s disease patients’ experiences, and Kalaupapa’s range of natural resources which add to the body of medical, social science, and Hawai‘i’s ecological research. The park provides extensive opportunities for collaborative management efforts and future research opportunities.

Geological Features and Unobstructed Viewshed

The scenic North Shore Cliffs are designated as a National Natural Landmark. The cliffs provide evidence of the massive landslide that spread underwater nearly 100 miles northward and shaped the island of Molokai. The peninsula from Kauhakō crater lake (one of the deepest volcanically formed lakes in the world) to lava caves provides evidence of the volcanic eruption that formed Kalaupapa approximately 300,000 years ago. The unobstructed viewshed includes sweeping panoramic views from the steep cliffs to the settlement and the majestic ocean beyond.

Soundscapes and Dark Night Skies

The general ambient quiet and the presence of dark night skies maintain Kalau-papa’s sense of place, historic setting, and feeling of isolation.

Terrestrial Ecosystem

Kalaupapa NHP’s montane wet forest, coastal salt spray vegetation, and remnant dryland forest are outstanding elements that form the terrestrial eco-system. The montane wet forest within the Pu‘u Ali‘i Natural Area Reserve has received the State of Hawai‘i’s highest conservation designation. The coastal spray community along the east coast of the Kalaupapa peninsula is considered the best in all of Hawai‘i by virtue of its lack of development. While the dryland forest on the rim of the Kauhakō crater is in poor condition, it is considered the last remnant of a low elevation windward dryland forest. Two offshore islets (‘Ōkala and Huelo) are designated Sea Bird Sanctuaries and also serve as a source of rare plant propagules for restoration activities.

Marine Ecosystem

The park contains a high diversity of marine species, some of which are rare in the main Hawaiian Islands, including one of the largest pupping areas for

endangered Monk seals. The algae (limu), corals, and other invertebrates are mostly intact with few invasive species. The nearshore fish communities are some of the healthiest in the main Hawaiian Islands with high biomass and a full complement of predators and other trophic groups. The park is one of the most spectacular examples in Hawai‘i of a large volcanic boulder habitat, providing refuge and spawning areas for the abundant reef life.

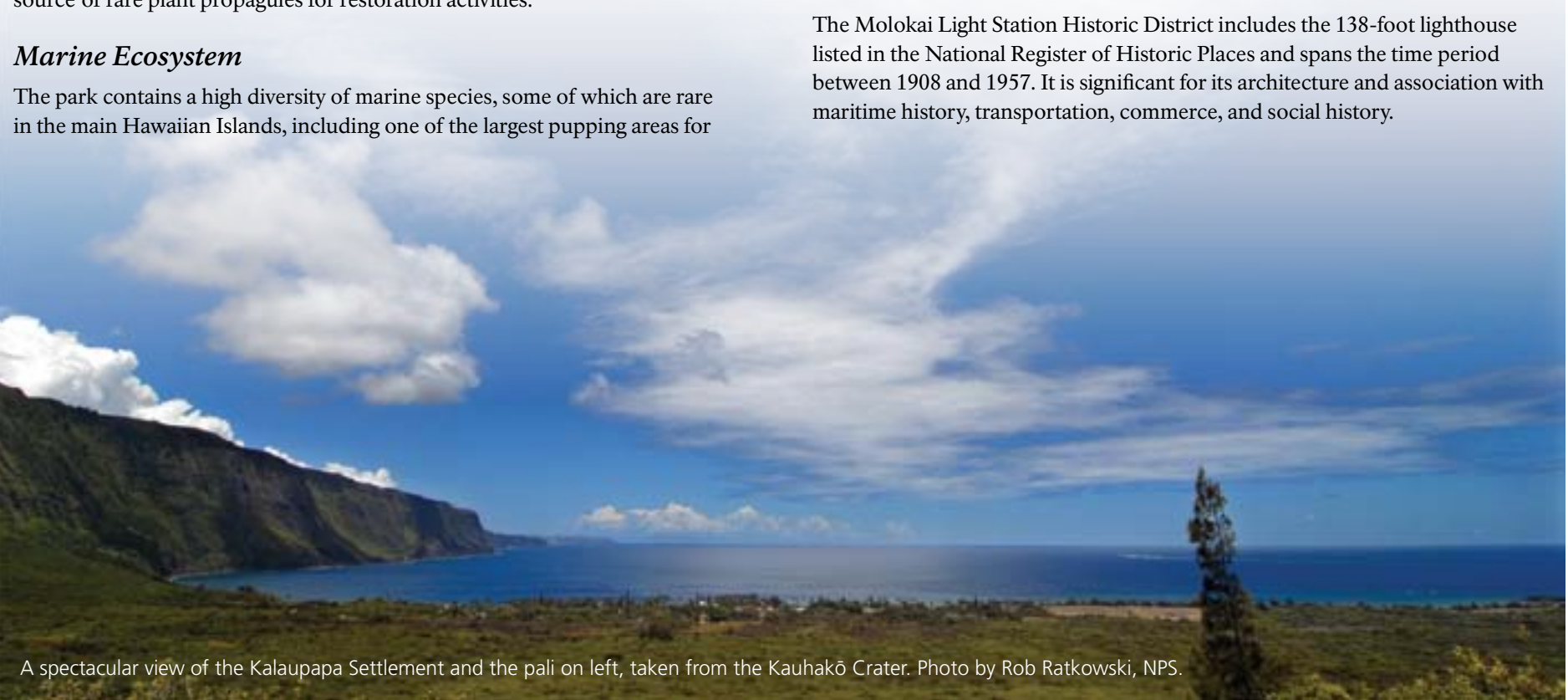
Freshwater Aquatic Ecosystem

The perennial Waikolu Stream, eligible for Wild and Scenic River designation, is one of the few remaining freshwater streams in Hawai‘i supporting all five of the endemic freshwater fish and associated invertebrate species.

Other Important Resources and Values

Molokai Light Station National Register District

The Molokai Light Station Historic District includes the 138-foot lighthouse listed in the National Register of Historic Places and spans the time period between 1908 and 1957. It is significant for its architecture and association with maritime history, transportation, commerce, and social history.



A spectacular view of the Kalaupapa Settlement and the pali on left, taken from the Kauhakō Crater. Photo by Rob Ratkowski, NPS.

Special Designations, Authorizations, and Mandates

Special congressional designations, authorizations, and mandates are legal requirements and administrative commitments that apply to a specific unit of the national park system. They are mandated by Congress or by legal agreements with other entities that add another dimension to the park’s purpose and significance. Mandates include the designation of an area in the park as wilderness or as an area that is managed by another entity. Mandates may also commit park managers to specific actions and limit their ability to modify land use in the park. The special mandates section describes Kalaupapa’s unique management structure and includes information about management authority, jurisdiction, landownership, designations and protected areas, special mandates, and cooperative agreements.

Management Authority and Jurisdiction

Kalaupapa National Historical Park differs significantly from most other national parks in that nearly all of the 8,725 acres of land, 2,000 acres of water, and improvements within the authorized boundary may remain in nonfederal ownership to be managed by the NPS through cooperative agreements. This section describes landownership, special designations and protected areas within the park, special mandates, and cooperative agreements that are unique to Kalaupapa National Historical Park.

Landownership

The National Park Service owns 22.88 acres in which the light house, as well as the Molokai Light Station, two historic houses, and four outbuildings are located.

The Department of Hawaiian Home Lands (DHHL) owns 1,290 acres of Home Lands located within the park boundary. The current 50-year lease between NPS and DHHL (which needs to be renewed in 2041) encumbers only the 1,247-acre parcel and does not include the 43 acres at Pālā‘au State Park that lies outside of Kalawao County.

The Hawai‘i Department of Land and Natural Resources (DLNR) owns 9,394 acres under Department of Health (DOH) jurisdiction, within Kalawao County. The NPS has a cooperative agreement with DLNR that needs to be renewed in 2029. Most DLNR land is zoned Conservation with 1541 acres in forest reserve status and 2,060 acres in submerged lands extending out ¼ mile offshore, including 60 acres surrounding Nihoa that lies outside of Kalawao County. The application of the Conservation zone indicates that the state has imposed development restrictions on the land in order to conserve, protect, or preserve important natural resources in those areas.

The Hawai‘i Department of Transportation (DOT) owns 42.2 acres located at the tip of the peninsula. This area encompasses the airport runway plus adjacent lands. DOT owns the structures at the airport facility that includes the terminal and three storage/maintenance buildings.

R. W. Meyer, Ltd. owns 72 acres located at the top of the pali east of Pālā‘au State Park.



Bay View Home kitchen and dining room, now used for NPS Natural Resources offices. NPS photo.

Table 2.1 Landownership in Acres within Kalaupapa NHP

NPS Tract Number	Owner	Manager	Acreage (Deed)	Acreage (GIS)	Acreage (TMK tax)
101-01	State DLNR (and DOT)	DOH and NPS	7,256	7,222	
101-02	NPS (Coast Guard)	NPS	22	22	23
101-03	NPS (Coast Guard)	NPS	0.75	0.88	
101-04	State DHHL (Kalaupapa Settlement)	NPS	1,247	1,259	
101-05	R. W. Meyer, Ltd.	NPS	72	77	
101-06	State DHHL (Pālā‘au State Park)	State Parks	43	40	
101-07	State of Hawai‘i DLNR Nihoa	NPS	78	95	
101-08	State of Hawai‘i DLNR Marine	NPS	2,000	1,777	
	State of Hawai‘i DLNR Marine Nihoa	NPS, DLNR	60	64	
	State of Hawai‘i DLNR ‘Ōkala	NPS, DLNR	Not specified	6.8	
	State of Hawai‘i DLNR Huelo	NPS, DLNR	Not specified	1.7	
	State of Hawai‘i DOT	DOT	Not specified	Not specified	42
	Total Land Acres		8,665	8,727	
	Total Marine Acres		2,060	1,841	
	Total Acreage		10,726	10,568	

Sources: Acreage Geographic Information System (GIS) from NPS electronic file: Kala_park-bndry_ply.shp

Acreage Deed TRA D1 Segment 101 from Electronic file: park_authbndry_tif; NPS, Division of Land Acquisition, Drawing No. 491 revision C.O. No. 8896-86-8

Acreage Tax Map Key (TMK) Maui County Tax Map Key 2002, electronic file: tmk2002.shp

Notes: a) Deed acres were reported in the text except for the DOT acreage that was not specified in the deed so Maui County TMK acres were reported.

b) Note that the original hardcopy map and current GIS acreages differ due to changes in technology and accuracy of drawing/digitizing.



Cliffs of ‘Ōkala islet. NPS photo.

Designations and Protected Areas

Within Kalaupapa National Historic Park there are a number of geographical areas that have special designation and are administered by different agencies. These areas are listed in the table below and described in detail in this section.

Table 2.2 Designations and Protected Areas within Kalaupapa NHP

Designation	Date	Designator	Total Area of Designation (acres)	Area of Designation within Kalaupapa NHP (acres)	Manager within Kalaupapa NHP
Molokai Forest Reserve	1903	Territorial Government of Hawai'i	1,541	1,541	NPS, DLNR
National Natural Landmark	1972	Secretary of the Interior	27,100	5,085	NPS
National Historic Landmark	1976	Secretary of the Interior	15,645	10,674	NPS
Seabird Sanctuaries on 'Ōkala and Huelo Islands	1981	State of Hawai'i, DLNR	9	9	NPS, DLNR
Pu'u Ali'i Natural Area Reserve	1985	State of Hawai'i Governor	1,330	1,330	NPS

Molokai Forest Reserve

The Forest Reserve System was created by the Territorial Government of Hawai'i through Act 44 on April 25, 1903. With Hawai'i's increase in population, expanding ranching industry, and extensive agricultural production of sugarcane and later pineapple, early territorial foresters recognized the need to protect mauka (upland) forests to provide the necessary water requirements

for the lowland agricultural demands and surrounding communities. Within Kalawao County, approximately 1,541 acres contain the mauka areas of the ahupua'a of Makanalua and Kalawao and are designated as Molokai Forest Reserve. The Forest Reserve is located above the 500-foot contour and serves as a public hunting area. With its inception, the Forest Reserve System represented a public-private partnership to protect and enhance important forested mauka lands for their abundance of public benefits and values. Today the tradition is carried on by the Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) for public Forest Reserve lands. DOFAW focuses its resources to protect, manage, restore, and monitor the natural resources of the Forest Reserve System.

National Natural Landmark

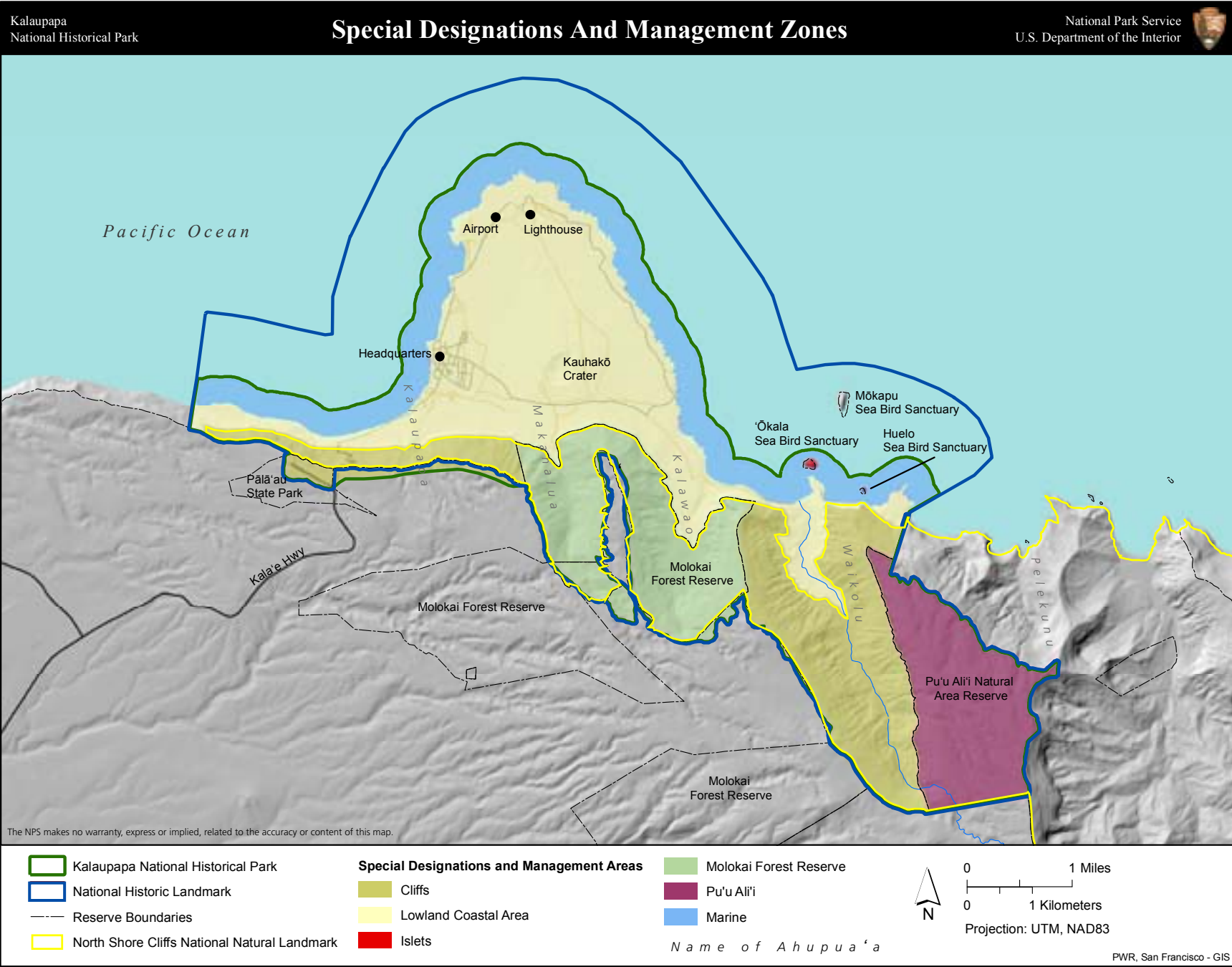
The North Shore Cliffs were designated a National Natural Landmark in December 1972. The landmark includes 27,100 acres located along 17 miles of the northeast coast between the villages of Kalaupapa and Halawa. Approximately, 1/5 (5,085 acres) of the Landmark is located within Kalaupapa National Historical Park. The North Shore Cliffs represent the major episode of volcanism that created Molokai, which is among the most ancient in the Hawaiian Island chain. The North Shore Cliffs and adjacent valleys and uplands are “scenically majestic and scientifically important. The physical features of Molokai, including the North Shore Cliffs, are considered to be of prime importance to geologists in piecing together the story of how the Hawaiian Islands were formed” (Designated dated December 1972).

National Historic Landmark

On January 7, 1976, the “Kalaupapa Leprosy Settlement” was designated a National Historic Landmark (NHL) and subsequently listed in the National Register of Historic Places (NR #76002415). It includes 15,645 acres of land and waters, an area significantly larger than the boundary of Kalaupapa NHP. The National Historic Landmark has a marine boundary that extends 0.93 miles offshore to include Mōkapu Island creating a marine area of 7,031 acres approximately 4,971 acres larger than current park marine area of 2,060 acres.

The Kalaupapa and Kalawao settlements are historically significant as the first Hansen's disease (leprosy) colony in American history. The NHL nomination identifies the areas of significance for the settlement as prehistoric archeology, historic archeology, architecture, community planning, religion, and social/

Figure 2.1 Special Designations and Management Areas



humanitarian activity (NPS 1976). The period of significance begins in 1866 when the first people afflicted with Hansen’s disease arrived at Kalaupapa and continues into the present (NPS1976).

In 2004 a condition update for the the National Historic Landmark Program determined the status of the Kalaupapa Leprosy Settlement National Historic Landmark as “Threatened” due to pest infestations impacting historic structures, deferred maintenance, and lack of funding to maintain the numerous physical resources that contribute to its significance.

An update to the National Historic Landmark nomination for the settlement is in progress.

Seabird Sanctuaries

On April 30, 1981, the State of Hawai‘i Department of Land and Natural Resources amended their rules regulating wildlife sanctuaries to include ‘Ōkala and Huelo Islands, off Waikolu, Kalawao, Molokai. The purpose of the rules is to conserve, manage, and protect indigenous wildlife in sanctuaries. These rules include prohibited entry, landing, etc., and the prohibition to remove, disturb, injure, kill, or possess any form of plant or wildlife (Department of Land and Natural Resource, Title 13, subtitle 5, Part 2, Capture 125).

Pu‘u Ali‘i Natural Area Reserve

Hawai‘i’s natural resources include geological and volcanological features and distinctive marine and terrestrial plants and animals, many of which occur nowhere else in the world.In 1970, the Hawai‘i State Legislature expressed the need to protect and preserve the state’s unique natural resources, both for the enjoyment of future generations and to provide baseline data to evaluate the impact of environmental changes occurring in the state. The statewide Natural

Area Reserve System was therefore established to preserve in perpetuity specific land and water areas that support relatively unmodified communities of natural flora and fauna, as well as geological sites. The Natural Area Reserves System is administered by the State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife. The system presently consists of 19 reserves on five islands, encompassing more than 109,000 acres of the state’s most unique ecosystems. One of these areas, Pu‘u Ali‘i, is located within Kalaupapa National Historical Park.



View of the offshore islets and Kalaupapa peninsula. Photo by Guy Hughes, NPS.

The Pu‘u Ali‘i Natural Area Reserve (NAR), established in 1985, encompasses 1,330 acres on the southeast corner of the park between Pelekunu and Waikolu Valleys. Elevations in the reserve range from 2,250 feet at the top of the sea cliffs on the northern edge to 4,222 feet at the summit of Pu‘u Ali‘i (DOFAW 1991). The Pu‘u Ali‘i NAR is divided into two management units – the North and South Units. The South Unit is fenced and encloses approximately 640 acres in the higher elevation portion of the reserve, while the North Unit is protected by two strategic fences making up the remaining 690 acres in the lower portion of the reserve. The NAR is bordered on the south by the Kamakou Preserve, which is managed by the Nature Conservancy.

Special Mandates

Administration

With the approval of the owner, the Secretary of the Interior may undertake critical or emergency stabilization of utilities and historic structures, develop and occupy temporary office space, and conduct interim interpretative and visitor services on nonfederal property within the park. The original intent of this statement was to provide the NPS with the interim authority to spend

federal funds until cooperative agreements were approved (Public Law 95-565. Sec. 105 dated 22 December 1980).

Authorization of Appropriated Funds

Effective October 1, 1981, there are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this title but not to exceed \$2,500,000 for acquisition of lands and interests in lands and \$1,000,000 for development (Public Law 95-565. Sec. 110 dated 22 December 1980).

Department of Health

According to HRS §326-34b the county of Kalawao shall be under the jurisdiction and control of the Hawai‘i State Department of Health and is governed by the laws, rules, and regulations of the Department and those relating to the care and treatment of persons affected with Hansen’s disease, except as otherwise provided by law. Cooperative Agreement CA8896-4-0001, Modification: 0001, dated March 30, 1984 and extended April 1, 2004 for 20 years.

Hansen’s Disease Patients

Health care for the patients shall continue to be provided by the State of Hawai‘i, with assistance from federal programs other than those authorized herein. Patients shall continue to have the right to take and utilize fish and wildlife resources without regard to federal fish and game laws and regulations. Patients shall continue to have the right to take and utilize plant and other natural resources for traditional purposes in accordance with applicable state and federal laws (Public Law 95-565. Sec. 106 dated 22 December 1980).

Kalaupapa Memorial

The Secretary of the Interior shall authorize Ka ‘Ohana O Kalaupapa, a nonprofit organization consisting of patient residents at Kalaupapa National Historical Park and their family members and friends, to establish a memorial at a suitable location or locations approved by the Secretary at Kalawao or Kalaupapa within the boundaries of Kalaupapa National Historical Park . . . to honor and perpetuate the memory of those individuals who were forcibly relocated to the Kalaupapa peninsula from 1866 to 1969 (H.R.410 Kalaupapa Memorial Act 2009).

Kalaupapa National Historical Park Advisory Commission

The Kalaupapa National Historical Park Advisory Commission was established on the December 22, 1980 for a duration of 45 years (Public Law 95-565. Sec. 108 dated 22 December 1980, Public Law 109-54. Sec. 128 dated 2 August 2005).

Land Acquisition

Lands owned by the State of Hawai‘i or by political subdivision are authorized to be acquired by the Secretary of the Interior only through donation, exchange, and only with the consent of the owner. Privately owned lands within the boundary of the park are authorized to be acquired by the Secretary of the Interior by donation, purchase with donated or appropriated funds, or exchange. The Secretary of the Interior is authorized to acquire lands, waters, and interests by any methods, except by condemnation, within the State of Hawai‘i for the conveyance and exchange of lands, waters, and interests within the Kalaupapa NHP boundary owned by the Department of Hawaiian Home Lands (Public Law 95-565. Sec. 104 dated 22 December 1980).

Land Lease from Hawaiian Home Lands

The Secretary may lease lands from the Department of Hawaiian Home Lands until such time as said lands may be acquired by exchange. The Secretary may enter into such lease without regard to fiscal year limitations (Public Law 100-202 dated 22 December 1987). On September 22, 1992, NPS entered into a lease for 1,247 acres with the State of Hawai‘i, Department of Hawaiian Home Lands for fifty years beginning on July 15, 1991 to July 14, 2041. The current lease agreement only encumbers 1,247 acres, which does not include the 43 acres at Pālā‘au State Park. The area contains the western portion of the peninsula, including the entire Kalaupapa Settlement, sea cliffs, and trail to topside. The NPS is obligated to pay a lease amount annually for use and operations on the premises (General Lease No. 231 dated 22 September 1992, Tax Map Key No. 6-1-01:01).

Patient and Native Hawaiian Staffing

Preservation and interpretation of the settlement will be managed and performed by patients and native Hawaiians to the extent practical. Notwithstanding any other provision of law, the Secretary shall give first preference to qualified patients and native Hawaiians in making appointments to positions

established for the administration of the park, and the appointment of patients and native Hawaiians shall be without regard to any provision of the federal civil service laws. The Secretary shall provide patients a first right of refusal to provide revenue-producing visitor services, including such services as providing food, accommodations, transportation, tours, and guides. Second right of refusal to provide revenue-producing visitor services will be given to native Hawaiians after patients have exercised their first right of refusal. Training opportunities shall be provided to patients and native Hawaiians in management and interpretation of the settlement’s culture, historical, educational, and scenic resources (Public Law 95-565. Sec. 102, Sec. 107 dated 22 December 1980; General Lease No. 231 dated 22 September 1992).

Patient Community

The Kalaupapa Hansen’s disease patients are guaranteed a well-maintained community, and they may remain at Kalaupapa for as long as they wish. The current lifestyle of these patients and their individual privacy will be protected (Public Law 95-565. Sec. 102 dated 22 December 1980).

Reevaluation of Policies

When there is no longer a resident patient community at Kalaupapa, the Secretary shall reevaluate the policies governing the management, administration, and public use of the park in order to identify any changes deemed to be appropriate (Public Law 95-565. Sec. 109 dated 22 December 1980).

Religious Structures

The Secretary may stabilize and rehabilitate structures and other properties used for religious or sectarian purposes only if such properties constitute a substantial and integral part of the historical fabric of the Kalaupapa Settlement, and only to the extent necessary and appropriate to interpret adequately the nationally significant historical features and events of the settlement for the benefit of the public (Public Law 95-565. Sec. 105 dated 22 December 1980)

Visitation

Kalaupapa NHP will provide for limited visitation by the general public. So long as the patients may direct, the Secretary shall not permit public visitation to the settlement in excess of one hundred persons in any one day (Public Law 95-565. Sec. 102, Sec. 106 dated 22 December 1980).

Coast Guard

In 1980, the Coast Guard transferred 23 acres to the NPS around the Molokai Light Station. In 2006, the Coast Guard transferred the Molokai Light Station to the NPS, under the General Services Administration, but the Coast Guard continues to maintain the lens within the lighthouse and the historic lens.

Long-term Agreements

The Secretary shall seek and may enter into cooperative agreements with the owners of property within the park pursuant to which the Secretary may preserve, protect, maintain, construct, reconstruct, develop, improve, and interpret sites, facilities, and resources of historic, natural, architectural, and cultural significance. Cooperative agreements shall be of not less than twenty years duration, may be extended and amended by mutual agreement. Cooperative agree-

ments shall include, without limitation, provisions that the Secretary shall have the right of access at reasonable times to public portions of the property for interpretive and other purposes. No changes or alterations shall be made in the property except by mutual agreement (Public Law 95-565. Sec. 105 dated 22 December 1980).

Each such agreement shall also provide that the owner shall be liable to the United States in an amount equal to the fair market value of any capital improvements made to or placed upon the property in the event the agreement is terminated prior to its natural expiration, or any extension thereof. The

Board of Land and Natural Resources

On August 16, 1989, the NPS entered into a cooperative agreement with the State of Hawai’i, Board of Land and Natural Resources for twenty years, entitled “Preservation of Natural and Cultural Resources, Kalaupapa.” The area under this cooperative agreement includes 1,330 acres of Kalawao County, within the boundary of the park, which have been established by the Governor’s Executive Order as the Pu’u Ali’i Natural Area Reserve. Other areas of Kalawao County have been designated as forest reservations under the care and control of the Board. The area also includes 50 acres of land at Nihoa and portions of the Pālā’au State Park. The NPS agrees to protect and preserve archaeological sites, native ecosystems, threatened and endangered species, and water and air quality, and to conduct research and prepare plans for management, operations, preservation, and interpretation of these resources (Cooperative Agreement No: CA 8896-9-8004 dated 16 August 1989 renewed as Cooperative Agreement No. H8896090017 renewed for 20 years September 15, 2009).

Department of Health

On April 1, 2004, the NPS renewed its cooperative agreement with the State of Hawai’i, Department of Health for an additional 20 years, entitled “Preservation of Historic Structures, Kalaupapa.” The NPS agrees to maintain utilities, roads, and non-medical patient functions and maintenance of historic structures within the park. The primary responsibilities for DOH at Kalaupapa are to provide food, housing, health care, and social services for the patient community. DOH is also responsible for issuing visitor access permits and management of the landfill. Since 1980, infrastructure responsibilities within the settlement have been shared between the DOH and NPS. Some of the DOH’s major infrastructure responsibilities have been transitioned to the NPS in anticipation of the DOH’s future departure. The Department of Health may transfer ownership of historic structures to the NPS by mutual agreement at any time (Cooperative Agreement No: CA 8896-4-0001 dated 30 March 1984 and renewed as modification -0001 dated 1 April 2004).

Department of Transportation

On March 9, 1987, NPS entered into a cooperative agreement with the State of Hawai’i Department of Transportation to coordinate operation and utilities for twenty years, entitled “Preservation of Natural and Cultural Resources, Kalaupapa.” The NPS agrees to assist in the preservation, protection, rehabilitation, restoration, interpretation, maintenance, and project planning regarding

Secretary is permitted to remove such capital improvements within a reasonable time of termination of the cooperative agreement. Upon the expiration of such agreement, the improvements thereon shall become the property of the owner, unless the United States desires to remove such capital improvements and restore the property to its natural state within a reasonable time for such expiration. Except for emergency, temporary, and interim activity, no funds shall be expended on nonfederal property unless such expenditure is pursuant to a cooperative agreement with the owner (Public Law 95-565. Sec. 105 dated 22 December 1980). The lease and agreements with partners and effective time periods are shown below in Table 2.3 Long-term Lease and Agreements at Kalaupapa NHP.

Table 2.3 Long-term Lease and Agreements at Kalaupapa NHP

Partner	Instrument	Effective Date	Term (years)
State of Hawai’i, Department of Hawaiian Home Lands	General Lease	July 15, 1991	50
Hawai’i Conference Foundation	Cooperative Agreement	September 27, 2003	20
State of Hawai’i, Department of Health	Cooperative Agreement	April 1, 2004	20
Catholic Church	Cooperative Agreement	August 23, 2004	20
State of Hawai’i, Department of Transportation	Cooperative Agreement	expired March 9, 2007 New agreement to be finalized in 2013.	20
State of Hawai’i, Department of Land and Natural Resources	Cooperative Agreement	September 15, 2009	20
R. W. Meyer, Ltd.	Memorandum of Understanding	April 27, 2012	5

buildings and cultural features located on airport grounds (Cooperative Agreement No: CA 8896-7-8005 dated 9 March 1987). An update to the agreement is underway.

East Molokai Watershed Partnership

Kalaupapa National Historical Park entered into a Memorandum of Understanding with the East Molokai Watershed Partnership when it was formed in 1999 and updated in 2003 to protect the best remaining native forest watershed areas on the East Molokai Mountains. Key strategies employed by the partnership include reduction of feral animal populations; monitoring systems that help guide and document management actions; community outreach that engages, educates, and gains support of the local communities; continual development of the partnership through fundraising, capacity building, and landowner expansion; and involvement with fire (Molokai Fire Task Force) and island invasive species efforts (Molokai subcommittee of the Maui Invasive Species Committee). Land-based partners include Kamehameha Schools Bishop Estate, Kamalo Ahupua'a (3,566 acres); Kapualei Ranch, Kapualei Ahupua'a (1680 acres); Kawela Plantation Homeowners Association, Kawela Ahupua'a (5,500 acres); State of Hawai'i Division of Forestry and Wildlife, Pu'u Ali'i (1,330 acres) and Olokui (1,620 acres) Natural Area Reserves; National Park Service, Kalaupapa National Historical Park (10,800 acres); and The Nature Conservancy, Kamakou (2,774 acres) and Pelekunu Preserves (5,714 acres). Agency partners include Ke Aupuni Lokahi, Enterprise Community Governance Board (community, funder); Maui County (funder); Molokai / Lāna'i Soil and Water Conservation District (technical assistance); USDA Natural Resource Conservation Services (technical assistance, funder); U.S. Fish and Wildlife Service (technical assistance, funder); EPA (technical assistance); U.S. Geological Services (technical assistance); and the State of Hawai'i Department of Health (technical assistance, funder).

R. W. Meyer, Limited

Seventy-two acres in the southwest corner of the park near the Kalaupapa Trailhead are privately owned by R. W. Meyer, Ltd. The park maintains a memorandum of understanding with R. W. Meyer, Ltd. for trail access, maintenance, and the planting of native plants (dated 27 April 2012 for five years).

Hawai'i Conference Foundation (HCF)

As part of the renewal of the Cooperative Agreement, a General Agreement was executed between HCF and the Park Service. This document allows for HCF and the Kana'ana Hou and Siloama congregations to continue using the Hale Kahu structure and Wilcox Parish Hall. Both of these buildings are state-owned and will eventually be transferred to the NPS. It also permits use of the buildings and grounds for up to 15 persons to participate in retreats. (Cooperative Agreement No: CA 8000-83 dated 26 September 1983 and renewed as modification -0001 dated 27 September 2003)

Roman Catholic Church in the State of Hawai'i

On August 23, 2004, the NPS renewed its cooperative agreement with the Roman Catholic Church in the State of Hawai'i for an additional twenty years entitled, "Preservation of Historic Structures, Kalaupapa". The NPS agrees to assist with the maintenance and operation of the St. Philomena's and St. Francis Churches and the St. Elizabeth Chapel (Cooperative Agreement No: CA 8896-4-0003 dated 22 August 1984 and renewed as modification- 0001 dated 23 August 2004).

Church of Jesus Christ of Latter-day Saints (LDS)

The LDS church and parish hall are privately owned by the Mormon Church. No agreement exists with the church. The LDS Church contacted the NPS in February 2012 and expressed a strong desire to enter into a Cooperative Agreement.

Americans of Japanese Ancestry (AJA)

AJA Buddhist Hall and Outbuilding are owned by Americans of Japanese Ancestry (AJA) Buddhist sect. The AJA organization is a nonprofit organization. It was determined that a cooperative agreement is unnecessary at this time.



Alternatives ∞



Siloama Church. NPS Photo.

The National Environmental Policy Act of 1969 (NEPA) requires that alternative management scenarios be developed for federal actions. This general management plan explores a range of ideas, methods, and concepts for managing Kalaupapa NHP. All alternatives should be feasible for implementation. In addition, regulations require that the plan identify a “preferred alternative” before the draft general management plan and the environmental impact statement is released for public review. The preferred alternative is the alternative the National Park Service believes would best accomplish its goals, based on the analyses conducted.

Development of these alternatives was based on information about Kalaupapa National Historical Park’s resources, visitor use, and visitor preferences gathered from National Park Service information, the public, government agencies, and stakeholder groups. Each of these alternatives would support Kalaupapa NHP’s purpose and significance, address uses of concern, avoid unacceptable resource impacts, and respond to differing wishes or concerns. The concepts and subsequent actions for each alternative comply with NPS park planning requirements and were evaluated to ensure consistency with current laws, regulations, and policies.

This chapter contains several parts:

- description of the four management zones for the action alternatives
- description of elements that are common to all alternatives
- description of alternatives A, B, C, and D including:
 - alternative concept
 - desired conditions
 - estimated costs
 - boundary modifications
 - user capacity prescriptions
- other actions and alternatives considered but dismissed from detailed consideration
- environmentally preferred alternative
- summary table detailing all components of the alternatives
- summary of impacts, see “Chapter 6: Environmental Consequences” for details

In many cases, decisions or other discussions contained in this general management plan/environmental impact statement (GMP/EIS) refer directly to maps

and figures; many decisions themselves are “map-based.” The reader must rely on the text, maps, and figures taken together to fully understand the range of alternatives described in this draft GMP/EIS.

Four alternatives are described in this draft GMP. Each alternative has a different overarching concept, application of management zones on the landscape (except for alternative A), series of actions, and associated costs. The four alternatives are characterized as follows:

Alternative A is the no-action alternative and assumes that programming, facilities, staffing, and funding would generally continue at their current levels to protect the values of Kalaupapa NHP in the near term. The NPS would continue to manage Kalaupapa NHP through cooperative agreements with agencies and organizations and the lease with the Department of Hawaiian Homelands (DHHL). Alternative A does not provide long-term guidance for park management after the Department of Health (DOH) departs Kalaupapa.

Alternative B focuses on maintaining Kalaupapa’s spirit and character by limiting visitation to the park. The goal for this alternative would be similar to alternative A, but would provide future guidance for managing Kalaupapa once the DOH leaves. Alternative B would maintain most of the rules and regulations that currently exist, including the limits of visitation of 100 people per day and age restrictions. Visitor use at Kalaupapa would be highly structured, though limited opportunities would exist for public visitation. The NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations.



Kalawao, late 1800s. Photo courtesy of Bishop Museum.

Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa’s lands in collaboration with the park’s many partners. Kalaupapa’s diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. Through hands-on stewardship activities, service, and volunteer work, groups would have meaningful learning experiences, while contributing to the long-term preservation of Kalaupapa’s resources. Visitation by the general public would be supported, provided, and integrated into park management. Visitor regulations would change in the long-term, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap while continuing to limit the number of visitors per day through new mechanisms.

Alternative D focuses on personal connections to Kalaupapa through visitation by the general public. Resources would be managed for long-term preservation through NPS-led programs. This alternative focuses on learning about Kalaupapa’s people and history through direct experience, exploration, and immersion in the historic setting. This alternative offers visitors the greatest opportunities in the park and and to explore areas of Kalaupapa on their own. Visitor regulations would change, including allowing children to visit Kalaupapa under adult supervision and removing the 100 person per day visitor cap, while continuing to limit the number of visitors per day through new mechanisms.

Identification of the Preferred Alternative

The preferred alternative is the alternative the NPS and State of Hawai‘i agency partners deemed at this time to be most capable of fulfilling Kalaupapa NHP’s mission and responsibilities. The planning team identified the preferred alternative through a week-long workshop in October 2011. The preferred alternative was identified following an initial assessment of the impacts of the alternatives. The public’s ideas, preferences, and reasoning greatly assisted the NPS in identifying the preferred alternative.

A logical and trackable decision-making process was used to analyze and compare the relative advantages, impacts, and costs of each alternative. The preferred alternative was identified because it: 1) preserves resources and promotes long-term stewardship of Kalaupapa, 2) provides a range of high quality visitor experiences, 3) preserves the character, sacredness, and values of Kalaupapa, and 4) provides for cost efficient and sustainable facilities and operations.

Management Zones

Management zones define specific desired conditions and management approaches to be achieved and maintained in each area of Kalaupapa NHP. Each zone includes the types of activities and facilities that are appropriate in that management zone. For Kalaupapa NHP, four management zones have been developed. These zones include:

- Integrated Resource Management Zone
- Engagement Zone
- Operations Zone
- Wao akua (Upland Forests) Zone

These zones form the basis of the plan’s alternatives and are applied to different areas of Kalaupapa NHP in each action alternative (alternatives B, C, and D). For alternative A, the no-action alternative, a management zoning scheme has not been completed, as the park currently operates without management zones to guide desired conditions in areas of the park. For alternatives B, C, and D, management zone boundaries were assigned according to the overall concept of each alternative.

It is important to note that some actions in the management zones, particularly related to visitation and use, would only be implemented after the DOH leaves Kalaupapa.

The management zones and prescriptions for Kalaupapa NHP are presented in Table 3.1. A zone concept, desired resource conditions, visitor use and experience, and facilities are described for each management zone. The zones are included in the maps for alternatives B, C, and D.

Table 3.1: Management Zones

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Zone Concept Summary	<p><i>This zone emphasizes the interconnectedness of nature and culture that is evident in people’s connection with the ‘āina at Kalaupapa.</i></p> <p>This is the most widely used zone applied to each of the alternatives.</p> <p>Natural and cultural resources would be managed in an integrated fashion for protection and restoration of native vegetation communities, wildlife habitat, and marine resources.</p> <p>Significant cultural resources would be preserved to perpetuate their historic, natural, and scenic character and for their interpretive and research values and traditional cultural activities.</p> <p>There would be opportunities to understand the significance of Kalaupapa’s resources through a range of methods that would be complementary to the landscape. Access would be by escort and through a special use permit only to allow for inventorying, monitoring, and other research and protection activities.</p> <p>Facilities would be minimal and only allowed in support of resource protection, visitor use, and visitor safety. Facilities could include trails, unimproved roads, and fencing.</p> <p><i>Areas zoned integrated resource management include:</i></p> <ul style="list-style-type: none">• Makanalua Peninsula• Coastal and ocean areas, offshore islets• Kauhakō Crater• Cemeteries• Portions of Kalawao• Portions of Waikolu Valley• Pu‘u Ali‘i Natural Area Reserve	<p><i>The emphasis of this zone would be to provide opportunities for visitors to engage, learn about, and experience Kalaupapa.</i></p> <p>Cultural resources would be preserved to tell Kalaupapa’s stories.</p> <p>Visitors would learn about the significance of Kalaupapa’s natural and cultural resources. Opportunities would include guided and self-guided tours, an orientation film, cultural demonstrations, interpretive and stewardship programs, and spiritual reflection, so long as resources would not be degraded. Escorted and unescorted visitor access would be allowed in this zone.</p> <p>Some historic structures would be rehabilitated for visitor services. Facilities could include a visitor center, waysides and kiosks, trails, roads, picnic, group use areas, lodging, and food service. Universal access opportunities would be provided.</p> <p><i>Areas that are zoned engagement include:</i></p> <ul style="list-style-type: none">• Kalaupapa Settlement• Pali trail• Road corridors to the airport, light station, portions of Kauhakō Crater, and Kalawao• Portions of Kalawao• Portions of Waikolu Valley	<p><i>This zone would consist mainly of operation and maintenance facilities for the park and its partners.</i></p> <p>Historic buildings and structures would be preserved to tell Kalau-papa’s stories. Some would be rehabilitated for operations.</p> <p>Intact natural resources and processes would be preserved. Resources may be further altered in previously disturbed areas to allow for operations.</p> <p>Visitor access would be controlled in certain locations and would generally be by escort only. Visitor experience may be restricted due to safety and residents’ privacy concerns.</p> <p>Facilities in this zone include buildings, structures, utilities, and transportation facilities for operations. Facilities could include the airport, harbor and pier, roads and parking, administrative offices, staff housing, maintenance facilities, warehouses and garages, utilities, and the DOH care facility (future use to be determined). Both motorized and non-motorized access would continue in this zone. Universal access opportunities would be provided.</p> <p><i>Areas that are zoned operations include:</i></p> <ul style="list-style-type: none">• Settlement facility areas, housing• Airport• Well and water tanks and access road• Composting and Recycling areas	<p><i>This zone is based on the native Hawaiian land classification called “wao akua” (place of the spirits). These upland forests would be managed for their sacredness and natural features.</i></p> <p>This zone includes the upland forests and generally follows the portion of the North Shore Cliffs National Natural Landmark within the park boundary. This zone would be managed primarily for its natural values.</p> <p>Natural resources would be preserved or restored where practical to allow native ecosystems to persist. Within this zone, the natural landscape is also the cultural landscape. Significant cultural landscape features would be preserved alongside natural features.</p> <p>Access would be difficult due to steep slopes. Access would be restricted for safety and would occur infrequently. Activities could include traditional practices and research.</p> <p><i>Areas that are zoned wao akua include:</i></p> <ul style="list-style-type: none">• The portion of the North Shore Cliffs National Natural Landmark within the park boundary following the 500 foot contour, but excluding the Pu‘u Ali‘i Natural Area Reserve.

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Cultural Resources: Cultural Landscapes	Kalaupapa’s cultural landscapes would be preserved to perpetuate their historic, natural, and scenic character and values.	Cultural landscapes would be actively preserved or reestablished to tell Kalaupapa’s stories.	Cultural landscapes would be preserved but could be adaptively re-used for park operations.	These areas would be pre-served for their scenery which contributes to the cultural landscape. Within this zone, the natural landscape is also the cultural landscape.
	The NPS would enhance the interpretative environment and historic character of the cultural landscape by selective reconstruction of non-extant features	Elements/features could be adapted for visitor use, administrative purposes, safety, and resource protection where compatible with the character defining features of the cultural landscape. Introduced features would not alter the character of Kalaupapa’s cultural landscapes.	Historic patterns of use in the cultural landscape would be retained while allowing operations to continue. Any introduced features would be sited and designed to be compatible with the character of Kalaupapa’s cultural landscapes.	Significant cultural landscape features, if present in this zone, would be preserved to perpetuate their historic, natural, and scenic character and values while allowing for natural resource objectives.
		NPS activities in the cultural landscape would serve to enhance interpretation.	Elements/features could also be adapted for visitor use, safety, and resource protection where compatible with the character defining features of the cultural landscape.	No adaptive re-use of cultural landscape features would occur in this zone.
		Traditional cultural practices would be incorporated in resource management activities to maintain cultural landscape elements.		There would be minimal introduced features, and only for resource protection.
Cultural Resources: Historic Buildings and Structures	Historic buildings and structures would be preserved through a range of treatments, including preservation and rehabilitation.	Historic buildings and structures would be preserved through a range of treatments, including preservation and rehabilitation.	Historic buildings and structures would be preserved through a range of treatments, including preservation and rehabilitation.	If historic buildings and structures are present, they would be preserved using a variety of treatments, including preservation and rehabilitation.
		Many historic structures could be rehabilitated and used as interpretive exhibits and to serve operational and visitor needs, such as food service and potential lodging.	Some historic structures could be rehabilitated and used to serve operational needs.	

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Cultural Resources: Archeology	Inventorying, monitoring and research of archeological sites would continue.	Archeological sites would be protected while allowing interpretation of appropriate resources.	Operations activities would not impede preservation of archeological resources.	Emphasis would be on preservation treatments and research.
	Opportunities for interpretation and cooperation with traditionally associated peoples may be developed.	Documentation and stabilization would support effective interpretation.	Monitoring and documentation of archeological resources would continue.	Stabilization and monitoring of archeological sites would continue.
		Opportunities for interpretation and cooperation with traditionally associated peoples may be developed. Service groups could assist with preservation projects.		
Natural Resources: Vegetation and Wildlife	Native plant communities and wildlife habitat would be preserved and promoted to the greatest extent possible.	Native plant communities and wildlife habitat could be modified to support important cultural features or to illustrate a particular historic period.	Native plant communities and wildlife habitat would be mostly intact, but may be modified by development in suitable areas.	<i>Same as Integrated Resource Management</i>
	Invasive nonnative species would be removed to preserve native species, native ecosystems and cultural resources.	Invasive nonnative species would be removed to preserve native species, native ecosystems, and cultural resources. Non-invasive non-native species could be maintained if determined to be a contributing resource to cultural landscapes.	In developed settings, native or appropriate non-invasive nonnative vegetation that can withstand operational and residential/ community use may be planted.	
			Invasive nonnative species would be suppressed and actively managed to preserve native species, native ecosystems, and cultural resources.	

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Natural Resources: Marine Resources	<p>Marine resources would be preserved and restored to the greatest extent possible. Marine resource conditions are driven by an integrated management approach to natural and cultural resources, and people.</p> <p>Selected areas would be resilient and resistant to climate change.</p> <p>Invasive nonnative species would be removed to the extent possible to preserve native species, native ecosystems, and cultural resources.</p>	<p>Near-term and long-term: Marine resources would be managed and restored for demonstration and interpretive purposes.</p> <p>Long-term: Natural processes would be allowed to occur to the maximum extent possible, but would be compatible with providing visitor engagement.</p>	<p>Marine resources would be managed primarily for their cultural importance and to allow for operational and administrative activities with a focus on limiting nonnative species introductions.</p>	<i>Not applicable in this zone</i>
Natural Resources: Ecological Processes, Including Hydrology, Fire, etc.	<p>Ecological processes would be primarily left unimpeded.</p> <p>The emphasis of resource management would be on the interconnectedness of nature and culture.</p> <p>Unique geologic features would be preserved and natural habitat conditions would be re-established.</p>	<p>Ecological processes would be primarily left unimpeded except to provide visitor opportunities where appropriate.</p> <p>Where possible, infrastructure would be designed or relocated to minimize impacts on ecological processes.</p> <p>Significant ecological resources would be protected from visitor use impacts.</p>	<p>Where possible, infrastructure would be designed or relocated to minimize impacts on ecological processes.</p> <p>Significant ecological resources would be protected from impacts from operational use.</p>	<p>Ecological processes would be protected to the greatest extent possible and would be primarily left unimpeded.</p> <p>Unique geologic features would be preserved and natural habitat conditions would be re-established.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Natural Resources: Soundscapes, Lightscares/ Night Sky, and Viewsheds	<p>The natural soundscape, night sky, and viewsheds would be preserved or restored.</p> <p>Natural sounds dominate, however distant artificial sounds associated with resource management operations and visitor experiences could be heard at times. Habitats for sensitive species would be free or nearly free of intrusive noise.</p> <p>Dark night skies would be preserved to the greatest extent possible. No artificial outdoor lighting would be present, although distant lighting could be visible from certain locations.</p> <p>Viewsheds would be protected to a high degree. Uninterrupted views of natural, cultural, and scenic resources would be a part of the visitor experience.</p>	<p>The natural soundscape, night sky, and viewsheds would be largely intact and enhance the visitor experience.</p> <p>Natural sounds would be generally audible mixed with sounds from visitor and cultural resource management and other park operations activities.</p> <p>Outdoor lighting would be present when needed to support visitor services or park operations, but would be designed to minimize light pollution.</p> <p>Historically and culturally appropriate sounds and lighting from the period of significance could modify the otherwise intact natural soundscape and night sky.</p> <p>Any new facilities would be sited and designed to minimize impacts on the soundscape, night sky, and viewshed.</p>	<p>Intact natural soundscapes, night skies, and viewsheds could be experienced at certain locations. Facilities would be sited and designed to minimize impacts on the soundscape, night sky, and viewshed.</p> <p>Natural sounds would be generally audible mixed with sounds from visitor and park operations activities. Artificial sound levels would be highest in this zone to enable all operations to continue unimpeded.</p> <p>Outdoor lighting would be used when needed to support visitor services or park operations, but would be designed to minimize light pollution.</p> <p>Views of natural, cultural, and scenic resources would be present in many locations.</p>	<p>The natural soundscape, night sky, and viewsheds would be intact.</p> <p>Natural sounds dominate in these areas, with few artificial sound disturbances limited to occasional park resource management operations and visitor experiences. Habitats for sensitive species would be free or nearly free of intrusive noise.</p> <p>No artificial outdoor lighting would be present, although distant lighting could be visible from other locations.</p> <p>Viewsheds would be protected to a high degree. There would be no visible human constructed features. Uninterrupted views of natural and scenic resources would be a part of the visitor experience.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Visitor Experience: Use Levels	Visitation levels would be generally low, with moderate visitation at entry points or points of interest. Opportunities for solitude might be found in certain areas. Visitor levels could be higher in locations where programs occur. Group sizes could be limited to protect experiential and resource protection objectives.	Visitation levels would generally be moderate in the long-term. Visitors could encounter a moderate to high level of contact with staff and other visitors during peak use. A range of group sizes could be accommodated.	Low use levels would be expected since this area is intended for staff and visitors on official business. Encounters with other visitors would generally be low, but encounters with park staff could be high.	Visitation levels would be low and encounters with other visitors would be infrequent. Park managers have the discretion to allow visitor uses that would not be disruptive to research or resource protection activities. Opportunities for solitude might be found in certain areas. Large group events would not be permitted.
Visitor Experience: Interpretation and Education	<p>Interpretation and education are important functions of this zone and would be achieved through a range of methods.</p> <p>Visitors would gain an understanding of natural (including marine) and cultural resources and their cultural value to the past and present.</p> <p>Structured programs would include hands-on stewardship activities in the landscape, such as invasive species management, site rehabilitation, and cultural practices.</p> <p>Other interpretation and education opportunities may be self-directed. Off-site opportunities to learn about the area would be provided through web access and at visitor facilities.</p>	<p>Interpretation and education are important functions of this zone and would be achieved through a range of methods.</p> <p>Interpretation and education would reflect all time-periods in Kalaupapa. Special emphasis would focus on the history of Hansen’s disease and the policy of forced separation and community use sites that played a major role in patients’ lives.</p> <p>Visitors would receive orientation describing what activities would be appropriate at Kalaupapa.</p> <p>Interpretive tools would include brochures, displays, audio interviews and presentations, and visits to historic structures adapted for interpretive use.</p>	<p>Interpretation and education would be focused on providing visitors with an understanding of sustainability and the challenges with Kalaupapa Settlement operations.</p> <p>Passive interpretative tools could include waysides.</p>	<p>Interpretation and education would emphasize the sacredness, significance, and/or sensitivity of the area and the importance of protecting it.</p> <p>Before entering this zone, visitors would receive education and interpretation about traditional cultural values and practices in the wao akua forest areas.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Visitor Experience: Activities	<p>Visitors would have opportunities to experience areas rich in cultural history with outstanding natural features. There would be opportunities for unstructured and self-guided experiences as well as opportunities to participate in interpretive and stewardship programs including guided walks/hikes.</p> <p>Opportunities would be complementary to the natural setting, and could be restricted to protect natural and cultural resources.</p> <p>Opportunities could include spiritual reflection, nature and culture appreciation, and stewardship programs. Passive interpretation such as brochures and wayside exhibits would be available.</p> <p>Kalaupapa’s traditional cultural practices would be perpetuated in this zone and visitors could experience these through observation and/or participation. A minimal number of traditional structures could be added to enhance the visitor experience.</p> <p>A moderate to high degree of physical effort may be required to experience this zone. Visitors should be prepared for challenge and use of outdoor skills.</p>	<p>Visitors would have opportunities to experience cultural landscapes. There would be opportunities for interpretation and education programs complementary to the cultural setting.</p> <p>Opportunities could include learning about historic sites and structures, participating in interpretive and stewardship programs (living history), spiritual reflection, hiking/walking (e.g. for topside opportunities), appreciation of natural and cultural resources, guided tours, and after-dark programs so long as cultural resources and values would not be degraded.</p> <p>In addition, special events such as cultural events and community celebrations may be allowed, but group sizes may be limited. Measures may be taken to mitigate impacts on resources and other visitors during these events.</p>	<p>Visitors would have opportunities to experience cultural landscapes by viewing exteriors of structures. Access may be controlled in certain locations.</p> <p>Opportunities could include orientation, guided walks, and passive interpretation.</p>	<p>Visitors would have opportunities to experience the cultural and natural heritage of Kalaupapa, but access would be controlled.</p> <p>Opportunities would be complementary to the natural setting, and could be restricted to protect natural and cultural resources to promote visitor safety.</p> <p>Visitors would have a self-guided experience in this zone. Opportunities include spiritual reflection, and appreciation of natural and cultural resources, so long as natural and cultural resources and values would not be degraded.</p> <p>Off-site opportunities to learn about the area would be provided through web access and at visitor facilities.</p> <p>A moderate to high degree of physical effort may be required to experience this zone. Visitors should be prepared for challenge and use of outdoor skills.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Facilities	<p>Facilities would be minimal and only allowed in support of resource protection, visitor use, and visitor safety.</p> <p>Types of facilities:</p> <ul style="list-style-type: none">• Trails• Unimproved roads• Fences for resource protection• Temporary facilities for resource management (staging areas, storage, helipad)• Unobtrusive signs and wayside exhibits• Existing structures to support utilities (Waikolu water systems) and resource management (U.S. Geological Survey stream gauges)• Limited, small-scale telecommunications facilities and power facilities may be allowed in this zone if designed and sited to minimize visual impacts	<p>Facilities in this zone consist primarily of buildings, structures, utilities, and transportation facilities for visitor use.</p> <p>Types of facilities:</p> <ul style="list-style-type: none">• Near-term:• Waysides and kiosks• Trails• Roads and parking areas• Mule corral• Restrooms• Picnic and group use areas• Long-term• Visitor contact facility (visitor center or visitor contact station)• Potential overnight accommodations• Educational areas or classrooms• Food service• General store• Limited, small-scale telecommunications facilities and transmission lines may be allowed if compatible with cultural landscape values and if designed and sited to minimize visual impacts.	<p>Facilities in this zone consist primarily of buildings, structures, utilities, and transportation facilities for operations.</p> <p>Types of facilities:</p> <ul style="list-style-type: none">• Roads and parking areas• Administrative offices• Staff housing• Maintenance facilities• Warehouses and garages• Harbor/pier• Signs• Waysides• Gas station• Utilities• Communications structures if compatible with cultural landscape values and if designed and sited to minimize visual impacts• Airport• DOH care facility (future use to be determined)• Potential alternative energy sites	<p>Facilities would be allowed only in support of resource protection.</p> <p>Types of facilities:</p> <ul style="list-style-type: none">• Limited unmaintained trails• Fences for resource protection• Temporary facilities for resource management activities• New telecommunications and power facilities would not be allowed

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Access and Transportation	<p>Access to this zone would be via trails and by the unimproved road used for park operations.</p> <p>Visitor access would be by escort only.</p> <p>In the near term, patients would continue to have vehicular access along the unimproved road to traditional gathering areas. The general public would access these hunting areas from topside.</p>	<p>Escorted and unescorted visitor access would be allowed.</p> <p>In the near term, escorted access would occur in all parts of this zone except the overlook, which would remain open to unescorted use.</p> <p>Access would occur along roads and historic trails. Sea access for permitted individuals could be allowed. Motorized access would be allowed on roads.</p> <p>In the near term, access between topside and the park along the pali trail would continue to be by DOH permit.</p> <p>Universal access opportunities would be provided.</p>	<p>This zone would encompass major transportation infrastructure such as the airport, harbor and pier, as well as improved road.</p> <p>Both motorized and non-motorized access would continue in this zone.</p> <p>Visitor arrivals by air and supply shipments via barge would continue. Access would be controlled in certain locations.</p> <p>Universal access opportunities would be provided.</p>	<p>Access to this zone would be by limited trails, and would be afforded mainly to researchers and cultural practitioners.</p> <p>Escorted and unescorted visitor access would be allowed.</p> <p>A landing zone clearing would afford helicopter access in support of resource management operations.</p> <p>Motorized access would not be allowed.</p>



Kalaupapa Landing, 1920s. Photo courtesy of Damien Museum.

Range of Alternatives

This section presents the four alternatives that are being considered for Kalaupapa National Historical Park. Each alternative is structured around a concept or vision for the future. For each alternative, there are desired conditions for resources and visitor use as a whole and for specific areas within Kalaupapa NHP. Each alternative is also supported by management zones with boundaries that vary by alternative. It is important to note that the management zones provide desired conditions for areas within Kalaupapa NHP, and the alternatives provide additional guidance both at a parkwide scale as well as site-specific prescriptions. The complete list of parkwide desired conditions and specific actions that would be taken under each alternative is presented in the alternatives comparison table at the end of this chapter.

Conditions at Kalaupapa are anticipated to change in the future, once there is no longer a patient community at Kalaupapa and the Department of Health ceases its operations. For each alternative, near-term and long-term guidance was considered and is identified where necessary. Near-term guidance is defined as the time period while there is still a Hansen’s disease patient community supported by DOH operations. Long-term guidance is defined as a time period when patients no longer reside at Kalaupapa and the DOH ceases operations within the park. For much of the guidance, the actions could be undertaken any time after the GMP is completed.



The original Bay View Home was destroyed by a fire between 1914 and 1915. Here is the Bay View Home in the Kalaupapa Settlement today. NPS photo.

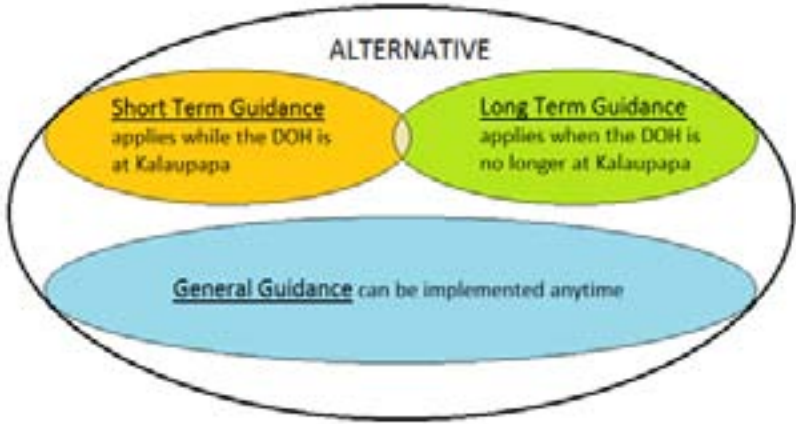


Figure 3.1: Alternatives include short-term, long-term, and general guidance

Management guidance, desired conditions, and actions that would apply to all alternatives, including alternative A (no-action), are described below in the Common to All section followed by descriptions of each of the alternatives: alternatives A, B, C, and D.

Actions Common to All Alternatives

The following management guidance, desired conditions, and actions would apply to all four alternatives.

In the near term, the ongoing transfer of DOH responsibilities to NPS would continue. In the long-term, the NPS would assume full management of visitor access, activities, and overall management of Kalaupapa and its resources in consultation with state agency partners.

Throughout this planning process, patient residents, ‘ohana of patient residents, kama‘āina of Kalaupapa, native Hawaiians, Molokai residents, and citizens have expressed concern about potential changes to Kalaupapa that could detrimentally affect Kalaupapa as a wahi pana (sacred place). Core to the future vision of Kalaupapa National Historical Park is honoring the legacy of the Hansen’s disease community. The long history of native Hawaiians who called Kalaupapa their home through respect and care of the land and its spirit is another important part of the history of Kalaupapa.

It is important to recognize that desired conditions from law and policy identified in Appendix C would also apply to all alternatives.

Hansen’s Disease Patients and Department of Health Operations

The National Park Service is committed to fulfilling its responsibilities under Public Law 96-565 with respect to providing “a well-maintained community in which the Kalaupapa leprosy patients are guaranteed that they may remain at Kalaupapa for as long as they wish; to protect the current lifestyle of these patients and their individual privacy. . .”

The living and deceased Hansen’s disease patients and their individual and collective experiences at Kalaupapa over the past 150 years are the primary reason for which Kalaupapa National Historical Park was established and exists today. The need to mālama i ka‘āina (care for the land) in a manner that shows respect for the peninsula’s people, stories, and way of life would be at the core of present and future NPS management of Kalaupapa.

As long as patients live at Kalaupapa, the National Park Service would manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the present character of the community. Several areas of management relate to this, including management of resources, visitor use, and facilities, and they are described in more detail in the following paragraphs in this “Actions Common to All Alternatives” section.

Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP that would be common to all alternatives.

Kalawao

Now and into the future, Kalawao would be preserved for its historic values as the location where the first settlement on the Kalaupapa peninsula for individuals with Hansen’s disease were forcibly removed from their homes to live in isolation. The character of Kalawao with its iconic churches, significant cemeteries, and quiet and spiritual ambiance provides a contrast to Kalaupapa Settlement. The area offers an opportunity for visitors to contemplate the experiences of thousands of people afflicted with Hansen’s disease living at Kalawao in earlier times. The association of Saint Damien with Kalawao as embodied in St. Philomena Church and his nearby gravesite would be preserved. Siloama Church would continue to be co-managed with the Hawai‘i Conference Foundation. The churches would continue to be actively used by the Roman Catholic Church and the Hawai‘i Conference Foundation for services and special events.

The planned addition of a Kalaupapa Memorial within the Old Baldwin Home for Boys site would be a new development in Kalawao; it would provide recognition and honor for the thousands of individuals afflicted with Hansen’s disease at Kalaupapa whose names and identities have been lost to time. Siting and construction of the memorial would follow the guidance detailed in the *Construct Memorial to Commemorate Kalaupapa Patients Environmental Assessment 2011*. It is expected that current patterns of visitation to Kalawao could change as a result of the memorial. The goals for the site development and design associated with the new memorial include preservation of significant

historic resources and design components that are compatible with the character and setting of the historic landscape at Kalawao.

Judd Park would continue to be a destination for visitors on the eastern end of the peninsula. The visitor facilities and overlook would be maintained to provide visitors with a place to relax, reflect, and view the rugged coastline of the North Shore Cliffs and offshore islands.

Above all, Kalawao would continue to be a place of contemplation and compassion, where the ethereal qualities of Kalawao’s history of forced isolation can be illuminated for all visitors.

Kalaupapa Settlement

The Kalaupapa Settlement is a cultural landscape comprised of more than 300 historic buildings, structures, and sites that are within the boundary of the National Historic Landmark. Designed as a settlement for the care and treatment of individuals with Hansen’s disease, it continues to serve the remaining patient community and functions as a small town. Land uses continue to be clustered to consolidate functions and services for the operation of the settlement and welfare of the patients (Figure 3.2). The NPS would strive to retain historic structures and landscape features that contribute to the National Historic Landmark through stabilization to ensure significant deterioration from termites, neglect, and the elements is halted. Cyclic maintenance would be required for long-term preservation.

In the near term in all alternatives, Kalaupapa Settlement would continue to function much as it does today. The DOH would continue to maintain patient homes, the care facility, and operational functions related to the care and treatment of the remaining patients. Patients would continue to reside in their houses, could be cared for by the DOH at the care facility, would continue to maintain beach houses on the outskirts of the settlement, and continue to live in Kalaupapa Settlement as their home. The NPS would continue its role in maintaining the historic fabric of the community. Visitors (by DOH permit only) would continue to stop at key locations within the settlement including the staging area near the base of the pali trail, bookstore in the Americans of Japanese Ancestry Hall, the churches, Fuesaina’s Bar, and other locations.

In the long-term in all alternatives, the NPS would continue to maintain buildings, structures, and cultural landscape features within Kalaupapa Settlement that contribute to the National Historic Landmark, with an emphasis on the period between 1866 and 1969. Many of the building types and associated areas within Kalaupapa Settlement provide specific functions for the operation of the community. Because of their design, use, and location within the settlement, the NPS would continue to maintain these buildings for their existing functions where appropriate. These include the maintenance facilities (such as the motor pool, recycling facility, construction camp, industrial warehouses, and storage facilities), the post office, NPS operational headquarters (such as Hale Mālama and NPS headquarters), visitors’ quarters, and gas station. In the long-term, houses and other building types that could be adaptively used for other functions would be assigned a use depending on the vision of the alternative. In the long-term, the NPS could assign some buildings to be managed by other entities, such as agency partners, organizations, and concessions operations. See the Kalaupapa Settlement sections in the alternatives for more descriptions.

Buildings, structures, and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve their congregations that include Hansen’s disease patients, DOH and NPS staff, and visitors with religious affiliations to the churches. These include St Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, and the Church of Jesus Christ of Latter-day Saints.

Molokai Light Station

The Molokai Light Station is a historic district on the northern tip of Kalaupapa peninsula which contains a majestic 138-foot lighthouse and associated buildings dating to 1908. Under all alternatives the Molokai Light Station would be preserved for its historic values associated with maritime history, transportation, commerce, and social history. In the long-term, the Molokai Light Station would be preserved and could be adaptively used for other functions depending on the vision of the alternative. In both the short and long-term, cultural and archaeological sites in the immediate area of the Molokai Light Station would continue to be inventoried, monitored, and undergo preservation treatments.

Figure 3.2 Kalaupapa Settlement Neighborhoods



Peninsula

The peninsula is defined as the area from the base of the sea cliffs to the ocean. Throughout history it has been referred to by different names, including Makanalua Peninsula, Kalawao Peninsula, and Kalaupapa peninsula. Kalaupapa peninsula is the most recognized name today. Today, the peninsula contains a rich array of archeological features that comprised a complex native Hawaiian cultural landscape that developed over centuries. Long-term preservation of resources that relate to the Hansen’s disease era; the long history of native Hawaiian habitation and use; and terrestrial, geologic, and marine resources would be ensured on the peninsula in the Kalaupapa, Makanalua, and Kalawao ahupua’a. Access to the peninsula would be focused on research and monitoring activities. In the near term, visitation by the general public would be prohibited, and all sponsored visitors would need to be escorted in the area.

Kauhakō Crater

Kauhakō Crater is the geologic site where lava erupted from the ocean floor, creating the Kalaupapa peninsula. The crater stands 405 feet tall and contains a small lake that plunges to 800 feet below sea level. Prior to 1866, native Hawaiians lived and farmed in and around Kauhakō Crater for centuries, and the remaining archeological features are evidence of an agricultural and residential complex. After Kalaupapa became the site for Hansen’s disease patients, several prominent residents were buried near the crater’s rim and a cross was erected. Today, Kauhakō Crater is only accessible to residents, researchers, and sponsored guests.

Pālā’au State Park

Forty-three acres of Pālā’au State Park are with the boundary of Kalaupapa NHP and cooperatively managed with DLNR. The Pālā’au State Park portion of Kalaupapa NHP contains the Kalaupapa Overlook and is the most accessible and most visited area within Kalaupapa NHP. In the near and long-term, the NPS would maintain the Kalaupapa Overlook in Pālā’au State Park in cooperation with DLNR including the wayside facilities, trailhead, and assisting with vegetation management to maintain the significant views to Kalaupapa. Visitors would continue to have free and unescorted access on the premises of Pālā’au State Park within the boundary of Kalaupapa NHP.

Seabird Sanctuaries on ‘Ōkala and Huelo Islands

‘Ōkala and Huelo Islands are state-designated seabird sanctuaries, cooperatively managed for the protection and conservation of indigenous birds and wildlife by the State of Hawai‘i Department of Land and Natural Resources (DLNR) and the NPS. Access to the islands would be limited to scientific and resource management activities, and public entry and landings would continue to be prohibited per state regulations in order to protect indigenous wildlife in sanctuaries. The existing management structure and limited access would continue in the near and long-term.

Waikolu Valley and Pu‘u Ali‘i Natural Area Reserve

Waikolu Valley and Pu‘u Ali‘i Natural Area Reserve would continue to be managed primarily for their outstanding resource values. Waikolu Valley includes intact archeological features from native Hawaiian settlements, the original water line to the Kalawao and Kalaupapa Settlements, terrestrial habitats, and aquatic resources associated with the Waikolu Stream. The Pu‘u Ali‘i Natural Area Reserve supports one of the best examples of Hawaiian montane wet forest or ‘ohi‘a rain forest in Hawai‘i and is critical habitat for rare and endangered native forest birds. Access would continue to be limited in the near and long-term. Hunting would continue to be permitted per State of Hawai‘i hunting regulations. Also see the “Wild and Scenic River” section.

Molokai Forest Reserve

The Molokai Forest Reserve within the boundary of Kalaupapa NHP includes upland portions of the Waihānau and Wai‘ale‘ia valleys. The Forest Reserve is dominated by nonnative plant species and is managed by DLNR as a public hunting unit. Existing general management practices by the NPS and DLNR focused on resource protection and monitoring, as well as hunting and gathering, would continue in the near and long-term.

Management Structure, Partnerships, and Agreements

Kalaupapa National Historical Park has a unique management structure different from most parks. Most of the lands within the Kalaupapa NHP boundary are owned by the State of Hawai‘i and managed by the NPS through a lease and cooperative management agreements. NPS regulations apply within the marine

area of the park (mean high water mark to ¼ miles offshore) and on land within the areas covered by the lease and cooperative agreements to the extent consistent with the lease and those agreements. See “Chapter 2: Special Mandates” for greater detail about management structure, partnerships, and management agreements.

In all alternatives, the NPS would establish and maintain partnerships and projects with state and local agencies, adjacent landowners, and organizations for resource protection, interpretation, and visitor use. Partnerships entities could include schools and universities, historical institutions, native Hawaiian cultural groups, environmental organizations, neighboring landowners, and many others.

Governance of Kalawao County

In the near term, the Department of Health would continue to govern Kalawao County under Hawai‘i Revised Statute 326. However, once the DOH departs Kalaupapa, DOH management authority of Kalaupapa and Kalawao County may no longer be necessary.

The NPS would work collaboratively with the State of Hawai‘i DOH, DHHL, DLNR, and DOT to determine governance of Kalaupapa when DOH departs.



View to Ka‘aloa, Pu'u Ali'i Natural Area Reserve. NPS photo.

It may be incumbent upon the State of Hawai‘i to pass legislation to update Hawai‘i Revised Statute 326 to address the continued existence of Kalawao County and governance of the areas within Kalawao County.

Cooperative Agreements

Cooperative agreements with DOH, DLNR, DOT, and the lease agreement with DHHL would continue. More information about these agreements can be found in Chapter 2: Special Mandates.

Department of Health Partnership

In the near term, the existing structure of shared DOH and NPS management of visitor use, facilities, and operations would continue. The current Cooperative Agreement between NPS and DOH runs through 2024.

The DOH would continue to manage operations related to the care of the patient community and DOH staff support. This includes continued operation of the care facility, cafeteria, general store, and gas station for patient residents and DOH staff. The DOH would also continue to oversee and operate the visitor permit and sponsorship system and some visitor facilities, including the Visitors’ Quarters. In addition, DOH would continue to maintain patient homes and yards and manage the state-mandated closure of the Kalaupapa Landfill.

The NPS would continue to manage visitor protection, education and interpretation, natural resources, cultural resources, historic buildings and structures, and infrastructure, including roads and trails. The NPS would continue to assume management and operational responsibilities and facilities as the DOH transitions out of management responsibilities at Kalaupapa.

Department of Hawaiian Home Lands Partnership

In the near term, the NPS would continue the 50-year lease agreement with DHHL that comes up for renewal in 2041 and work collaboratively with DHHL to define and plan for long-term management of DHHL lands.

Department of Land and Natural Resources, Department of Transportation, and R. W. Meyer, Ltd. Partnerships and Churches

In the near term, the NPS would work collaboratively with DLNR (Cooperative Agreement runs through 2029), DOT (Cooperative Agreement currently up for renewal for another 20 years), and R. W. Meyer, Ltd. (Memo of Understand-

ing) for management of these lands, resources, facilities, and operations within Kalaupapa NHP boundary.

Cultural Resources

The NPS would continue to conduct cultural resource projects, inventories, and interpretation related to cultural resources. This includes continuing to stabilize and preserve historic buildings, structures, and landscape features that contribute to the National Historic Landmark designation as funding allows.

Values, Traditions, and Practices of Traditionally Associated People (also referred to as ethnographic resources)

The NPS would continue the anthropology program in which NPS staff, partners, and researchers engage patients, lineal descendants, and other subject-matter experts (such as retired nurses) in ethnographic research through oral histories and participant observation in the form of informal discussions or open-ended interviews.

Archeological Resources

Archeological sites would be preserved for their interpretive and research values and traditional cultural activities. The NPS would continue ongoing efforts to monitor and conduct condition assessments of archeological sites and perform archaeological inventory surveys. The NPS would prepare baseline documentation including: a site-specific research design, updated Archaeological Overview and Assessments and standard operating procedure documents.

Historic Structures

Historic structures refers to buildings and structures that are contributing to the Kalaupapa Settlement National Historic Landmark, or are otherwise listed or are eligible for listing in the National Register. The NPS would conduct condition assessments and employ historic preservation treatments to protect historic structures. Structures that were built by patients after 1969 would be evaluated to determine whether they are historic and/or contribute to the NHL. Non-contributing historic structures could be stabilized and adaptively re-used for operations or documented and allowed to deteriorate until they become a safety hazard and removed.

Treatments for Historic and Non-historic Structures and Facilities
The following section defines treatments according to the Secretary of the Interior’s Standards for the Treatment of Historic Properties. It provides information about the application of more specific treatments for historic buildings included in the alternatives. These treatments were applied to Kalaupapa’s historic buildings based on a building’s condition, potential future function, and for cost estimating.

Historic Stabilization
Stabilization is a treatment under the standard for preservation. Stabilization involves “correcting deficiencies to slow down the deterioration of the building.” Stabilization is not considered a final treatment. For Kalaupapa’s historic buildings:

- Stabilization is the minimum treatment for structures that were constructed between 1866 and 1969 and contribute to the NHL.
- Generally, stabilization is to maintain the exterior character of a structure. Future use is as an exterior exhibit until a future use is determined.
- Stabilization can include treatments and activities such as exterior painting, roof replacement, pest control, structural bracing, addressing moisture and ventilation, and securing mechanical systems and utilities.

Historic Preservation
Preservation means the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. (The Secretary of the Interior’s Standards for the Treatment of Historic Properties 36 CFR § 68.2(a)). For Kalaupapa’s historic buildings:

- Preservation is listed as a treatment if the historic building materials and character-defining features are intact and in good condition.
- Preservation is applied to structures where a future interior use is projected and/or the structure is highly significant to Kalaupapa’s history.
- Preservation is applied if the projected use is the same as its historic use or closely aligned use.
- Preservation is for structures that require only cyclic maintenance to maintain the historic integrity of the structure.

- Preservation generally includes stabilization treatments and activities, protecting and maintaining the structure, repairing, limited replacement in kind, and employing hidden structural reinforcements and upgrading mechanical and utility systems as appropriate.

Historic Rehabilitation
“Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values” (Secretary of Interior Standards). For Kalaupapa’s historic buildings:

- Rehabilitation is listed as a treatment if the historic structure is in fair condition or in poor condition according the LCS or formal/informal condition assessment.
- Rehabilitation is applied to structures where a future interior use is projected and/or the structure is highly significant to Kalaupapa’s history. Rehabilitation assumes that “existing historic fabric has become damaged or deteriorated over time and, as a result, more repair and replacement will be required.”
- Rehabilitation generally includes protecting and maintaining the structure, repairing and replacing historic materials and features, and making minor alterations and additions for continued use.

Historic Rehabilitation for Public Use
This treatment requires additional modifications to historic buildings to make them universally accessible, safe for visitor use, or require a significant changes for a new use to occur within the structure. For Kalaupapa’s historic buildings:

- Adaptive use is listed as a treatment if the historic structure is in fair condition or in poor condition according the LCS or formal/informal condition assessment.
- Adaptive use is applied to structures where a projected future interior use is different than its historic use.
- Adaptive use includes all the treatments for rehabilitation and may include some code required structural interior and exterior changes for accessibility and safety.
- Most adaptive use is to accommodate visitor activities within a historic building.

Maintain Non Historic Facility
Maintenance is for non-historic structures that were constructed after 1969. They contribute to the operations and functions of the park.

Renovate Non Historic Facility
Renovate is for non-historic structures that were constructed after 1969. They contribute to the operations and functions of the park. Their future use could necessitate significant changes to the structure to allow a change in use or significant updates.

Soils and Geologic Resources

The NPS would continue monitoring of geological resources.

Vegetation

The NPS would continue to restore native vegetation in demonstration restoration areas by removing nonnative species and planting native species. In the native forests within the park, the NPS would continue feral animal capture to reduce destruction of native vegetation. The NPS would continue preservation of areas with native vegetation such as the coastal strand and Pu’u Ali‘i. The NPS would also continue nursery activities supporting rare and threatened native plant propagation.

Wildlife

A focus on reduction and management of nonnative wildlife species within the park would continue. This includes reducing feral ungulates by fencing and hunting in selected management units of the park, maintaining the existing level of feral ungulate removal, and managing feral animals within the settlement, such as mongooses. The cooperative agreement between the NPS and DLNR includes provisions for managing feral animals within the park boundary. Both the National Park Service and the Department of Health have been issued special Wildlife Control Permits by DOFAW, for controlling problem pig and deer within the park. All participants must possess a state hunting license and be a signatory on the permit, even if not bearing arms.

Fishing, Hunting, and Gathering

The park’s enabling legislation provides that “patients shall continue to have the right to take and utilize fish and wildlife resources without regard to Federal fish and game laws and regulations. . . [and] Patients shall continue to have the right to take and utilize plant and other natural resources for traditional purposes in accordance with applicable state and federal laws” (16 USC 410jj-5). NPS regulations apply within the marine area of the park and on land to the extent those regulations are consistent with the lease and cooperative management agreements under which NPS manages the park.

Cultural Landscapes

Documented cultural landscapes within the boundary of Kalaupapa NHP include the Kalaupapa and Kalawao Settlement and the Molokai Light Station. The NPS would continue to document and research Kalaupapa’s cultural landscape features, preserve significant cultural landscape features, and manage fruit and legacy trees within the settlement as funding allows. A cultural landscape report would be completed to prescribe preservation treatments for landscape characteristics and features.

The NPS would continue active management and care of known cemeteries, including ongoing stabilization of known gravesites as funding allows.

Museum Collections

Museum collections items would continue to be documented and preserved as part of the archives and manuscript collections. The NPS would continue to consult with patients and ‘ohana to better understand objects in collections. Management of the museum collections would be guided by the current museum management plan and the museum emergency operations plan.

Natural Resources

The NPS would continue to implement natural resource management priorities including: research, inventory, monitoring, feral animal control, fencing, hunting, rare species stabilization, and incipient alien species removal. The NPS would continue active participation and pursuit of East Molokai Watershed Partnership goals. The NPS would continue to monitor and inventory marine resources within the ¼ mile off-shore boundary of the park. Sensitive, threatened, and endangered species and associated habitats may be actively managed in order to perpetuate these species.

Water Resources

The NPS would continue monitoring and research of water resources to identify high water quality areas, such as ocean, stream, Kauhakō Crater Lake, and wetlands. The NPS would also continue to manage the water treatment and water distribution system for drinking water.



This painting of a patient-resident is stored in the park museum collections. NPS photo.

Applicable DOH regulations for fishing, hunting, and gathering would continue until the DOH departs. See Appendix G for the DOH’s rules and regulations governing all visitors to Kalaupapa. Current DOH fishing regulations for visitors include only pole fishing, no net fishing, no ‘opihi picking, no spear fishing, and enforcement of all state Department of Forestry and Wildlife, a division of DLNR, and federal fish and game rules.

The State of Hawai‘i, Division of Forestry and Wildlife (DOFAW) has jurisdiction over hunting above 500 feet in the park. This area encompasses the designated Molokai Forest Reserve and Pu‘u Ali‘i Natural Area Reserve. Anyone with a valid state of Hawai‘i hunting license can hunt in this area.

Pursuant to DOH regulations, patient and worker residents are allowed to gather plant resources for lei, medicine, ceremonies, and cultural and community events. Guidelines and/or a permit process have not yet been established for subsistence plant collecting or gathering plant materials for cultural use. Visitors are prohibited from gathering plants within the park.



Mōkapu (left) and `Ōkala (right) islets. NPS photo.

Pursuant to DOH regulations, patient and worker residents of Kalaupapa are allowed to collect salt. Visitors are allowed to pick salt but may only do so in the company of their sponsor, who must either be a patient or worker resident. This is because the salt picking areas are beyond the boundaries of where visitors may travel without an escort. No bag size or other limits have yet been set on salt collecting, though salt may not be sold or sent out of Kalaupapa for sale.

Wild and Scenic River

Waikolu Stream and its immediate environs would be protected. The NPS would not undertake any actions that would diminish its free-flowing conditions within Kalaupapa NHP. The NPS would work with the Molokai Irrigation System to prevent additional extraction of water in order to maintain the integrity of Waikolu Stream.

Waikolu Stream was listed as eligible for wild and scenic river designation in the national rivers inventory in 1993 for its outstandingly remarkable qualities related to *scenery*, *fish*, and *wildlife*, and was classified as Wild and Scenic.

Based on findings of the eligibility analysis for Waikolu Stream included in this general management plan, the NPS would recommend updating the national rivers inventory to add *culture* and *history* to Waikolu Stream’s outstandingly remarkable values. New information related to its outstandingly remarkable values related to scenery, fish, and wildlife has also been updated. The Wild and Scenic classifications would be maintained.

During the life of this general management plan, the NPS would evaluate and/or complete a suitability analysis related to wild and scenic river designation of Waikolu Stream.

The complete “Wild and Scenic River Analysis for Kalaupapa NHP” is included in Appendix E of this document.

Waihānau and Wai‘ale‘ia Streams were assessed for wild and scenic river eligibility in 1990 as part of the Hawai‘i Stream Assessment; and Waihānau was found to possess outstanding cultural resources. Other streams within Kalaupapa NHP are intermittent. These streams were not assessed for wild and scenic river eligibility as part of this GMP. Additional analysis for wild and scenic river eligibility and suitability of Waihānau, Wai‘ale‘ia, and other streams could be conducted during the lifetime of this GMP.

Scenic Resources

The NPS would continue current management efforts for the preservation of scenic resources, such as removal of nonnative vegetation to maintain significant and historic viewsheds.

Interpretation and Education

In the near term, the park’s website, exhibits at the bookstore, waysides, and the park brochure would be maintained as ways to share the park’s history with the public and orient visitors to Kalaupapa NHP. The NPS would continue to grow its interpretation and education division, developing limited interpretive programs and activities, such as a self-guided walking tour of the settlement. Most onsite interpretation and education would continue to be provided by the private patient-run tour company and by allied organizations and institutions. Limited and occasional outreach programs on topside Molokai would be continued and expanded as funding allows.

Visitor Use and Experience

The structure of shared DOH and NPS management of visitor use via a cooperative agreement would continue. DOH rules and regulations for visitation would continue in order to provide a well-maintained community for the patient residents and to protect their privacy. The NPS would continue to manage visitor protection and facilities that support visitation.

In the near term, general public visitation would be limited to 100 people per day as specified in the enabling legislation and desired by the Kalaupapa Patients Advisory Committee. Visitation would continue to be day-use only, and visitors would continue to need an escort while visiting the historical park. Organized tours for the general public would be provided. There would be no entrance fees, however fees for service such as the mule ride and tours would continue. Children under the age of 16 would not be allowed. Patient residents and DOH and NPS staff would continue to sponsor family, friends, and non-resident staff for day and overnight stays. The DOH would continue to manage the visitor permit and sponsorship system.

DOH would continue to prohibit recreational uses that are not compatible with the purpose of the park, such as scuba diving, mountain biking on unpaved roads, geocaching, skateboarding, and spelunking. See Appendix G for specific DOH rules and regulations governing all visitors to Kalaupapa Settlement.

In the near and long-term, public camping would not be allowed within the boundary of Kalaupapa NHP, including Waikolu Valley, due to concerns about resource protection and safety for visitors and staff.

Commercial Visitor Services

In the near term, commercial activities operated by patient residents for tours and Fuesaina’s Bar would continue. The commercial use agreement with the mule ride operator would continue. The NPS would continue to partner with Pacific Historic Parks Association to operate the bookstore for educational and merchandise sales related to Kalaupapa.

NPS involvement and management of concessions and commercial services would be guided by Public Law 95-565 which provides patients a first right of refusal to provide revenue-producing visitor services, including such services

as providing food, accommodations, transportation, tours, and guides; and the General Lease No. 231 with DHHL that gives second right of refusal to native Hawaiians for revenue-producing visitor service after patients have exercised their first right of refusal. The NPS may consult with DHHL in the selection of applicants to operate concessions and commercial services at Kalaupapa.

Sustainable Practices and Responses to Climate Change

Kalaupapa NHP would strive to be energy independent by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices. In line with the NPS’s *Climate Change Response Strategy*, the park’s goals and objectives would guide the protection of park resources through four integrated components: science, adaptation, mitigation, and communication.

Existing efforts to achieve these goals would continue, including bicycle use, the community recycling program, monitoring possible climate change effects, and engaging in the NPS Climate Friendly Parks program and Climate Action Plan. The NPS would seek to minimize motor vehicle use by staff, volunteers, and



Visitors on a mule trip down the pali trail. NPS photo.

visitors in order to reduce gas consumption and carbon emissions. The NPS would encourage a “pack-in, pack-out” policy for all visitors.

The park would continue to install photovoltaic panels in selected areas on a limited basis such that visual impacts to the cultural landscape are minimized. The park would also consider the feasibility of a comprehensive energy conservation strategy, including the consolidation of renewable energy generation equipment in one or more locations.

Access and Transportation Facilities

In the near term, the current DOH permitted options for entering the historical park would continue. These include entering by foot or mule on pali trail or by plane into Kalaupapa Airport. Sea access for visitors would continue to be prohibited in the ¼ mile ocean corridor within the park due to unsafe open ocean conditions. No new transportation routes or methods to access to Kalaupapa would be allowed or constructed, including, for example, either a tram for passengers or a road for motor vehicles from topside. See the “Alternatives and Actions Dismissed from Further Consideration” section at the end of this chapter.



Patient residents and DOH workers at the Kalaupapa Airport. NPS photo.

Land Access and Pali Trail

The NPS would continue to maintain the historic pali trail for foot and mule traffic, which is the primary land access that connects Kalaupapa to topside Molokai. The NPS would offer to assist the local community with trail planning adjacent to Kalaupapa NHP on topside Molokai.

Air Access and Kalaupapa Airport

The Kalaupapa Airport would continue to serve the transportation needs of the Kalaupapa community and visitors to the historical park. Air access to the Kalaupapa Airport would continue for planes and helicopters by commercial carriers and private planes from Honolulu, Ho‘olehua Airport on Molokai, and other island airports. Air access provides the quickest access to Kalaupapa and is necessary in cases of emergency. Air transport is also necessary to provide supplies to the Kalaupapa community and transport garbage off the peninsula. The NPS would encourage the DOT and FAA to: 1) provide safe and adequate access without increasing pressure on Kalaupapa’s way of life, and 2) work with commercial tour flight operators to continue avoiding flight paths in airspace over the settlement. All commercial air tours must comply with the National Parks Air Tour Management Act of 2000. For scenic overflights, the current FAA rules state an aircraft maintain an altitude of at least 1600 feet above ground level at Kalaupapa would continue. These recommendations consider the impacts of aircraft noise to the soundscapes at Kalaupapa NHP with the goal of minimizing unnecessary aircraft noise in order to preserve Kalaupapa’s ambience and natural sounds. General aviation over Kalaupapa would continue to be regulated by Federal Aviation Agency rules.

Sea Access and Kalaupapa Landing

Water access to Kalaupapa NHP would continue to be limited to the barge to provide general supplies and project materials to Kalaupapa and official NPS boat access associated with marine resources management. The location and configuration of the Kalaupapa pier and seasonality of ocean conditions make sea access unpredictable and unsafe during most of the year. For these reasons, safe sea access to Kalaupapa is very limited. Special events within the ¼ mile ocean boundary would require a special use permit and would be determined on a case-by-case basis. General visitors would not be allowed to anchor within the offshore ¼ mile park boundary without a special use permit. The NPS would not support a ferry service to Kalaupapa because of safety concerns at the harbor.

Kalaupapa Roads and Trails

Transportation by motor vehicles within Kalaupapa would be reduced. Whenever possible, the NPS would use fuel efficient or electric vehicles, bicycles, and pedestrian transport for both visitors and operations within the settlement. Whenever possible, historic roads and trails would be adapted and re-used as feasible and within the framework of future management. Quiet pavement would be considered for road upgrades in the future.

Operations

Operational Facilities

The use of historic structures and facilities by patient residents, DOH, NPS, and partners within Kalaupapa NHP would continue in the near term.

The alternatives do not call for new facilities within the Kalaupapa peninsula, however new facilities may be deemed necessary in the future if adaptive re-use of structures is clearly not feasible for the required function. Any new construction would be designed to be architecturally compatible with the settlement’s historic structures and character and would be sited to be compatible with historic uses and the visual character of the settlement. The Hawai‘i State Historic Preservation Department would be actively consulted for any proposed new construction. Any new construction would incorporate sustainable energy systems, and siting of any new facilities would consider sea level rise. In the long-term, the NPS could explore other options for administrative facilities in partnership with the state.

In the near term, the NPS would continue to maintain all NPS managed administrative facilities within the boundary of the park. The NPS would also continue to share use of administrative facilities with DOH where feasible. NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.

The NPS would continue to manage infrastructure for the historical park, including the water, sewage, and trail system, and would assist Maui Electric in managing the electrical distribution system. The water system would also be improved for water conservation measures. The NPS would additionally consider burying utility lines to improve views and decrease long-term maintenance costs.

Communications facilities would be maintained to provide phone, radio, and internet connectivity to Kalaupapa Settlement. If additional communication facilities were constructed in the park they would need to be compatible with the historic scene.

Safety and Security

Safety and security would continue to be a high priority for the NPS in its management of Kalaupapa NHP. Operational leadership concepts and strategies would be integrated in to all aspects of management at Kalaupapa NHP. The NPS would continue current partnerships with emergency management agencies, including Maui County Police and Fire and Coast Guard for search and rescue operations, air medical transport, and law enforcement. Emergency medical services would include first responder capability by NPS or others. Individuals with life threatening emergencies would continue to be medically evacuated by air transport to the nearest medical facilities.

The NPS would adapt and modify the current DOH emergency management plan to meet the needs of the changing Kalaupapa community.

The NPS would continue to implement the fire management plan, including establishing and maintaining fire breaks around the settlement, maintaining fire suppression systems, and adding new fire suppression systems to historic buildings as feasible.

Staffing

The park would continue to maintain NPS staff and volunteers at Kalaupapa to support the purpose of the park. NPS staff administer the park, manage resources, provide visitor protection and law enforcement, and maintain Kalaupapa’s historic structures and facilities, including roads, grounds, cemeteries, and infrastructure systems.

In the near term, the DOH rules and regulations related to employees and kōkua would continue. Only patient residents, NPS, DOH, DOT, and concession staff would be allowed to reside at Kalaupapa. Family members of staff would continue to be considered as visitors and would be required to follow the DOH rules and regulations for visitation.

The hiring preference and provision for training opportunities for patient residents and native Hawaiians under Public Law 95-565 would continue.



NPS staff at the 2009 Father Damien canonization celebration. NPS photo.

One full-time equivalent (FTE) is one person working 40 hours per week for one year, or the equivalent. The total number of FTEs is the number of staff required to maintain the assets of Kalaupapa NHP, provide acceptable visitor services, protect resources, and generally support Kalaupapa NHP’s operations in the near term. The FTE number indicates base-funded staff only. Term, seasonal, or volunteer positions funded by projects or partners are not included in the total FTE number. FTE salaries and benefits are included in the annual operating costs. In addition, several staff are funded by projects; these include facilities and maintenance workers and cultural and natural resource management staff. These positions could be funded by future projects or be converted to permanent base funded positions as funding allows.

Cost Estimates

Cost estimates for all alternatives are not for budgetary purposes; they are only intended to show a relative comparison of costs among the alternatives.

Cost estimates are in 2012 dollars. Construction cost estimates are Class C and are guided by the NPS Cost Estimating Requirements Handbook (2012). Gross cost estimates are provided for all costs; gross estimates include escalation factors such as location, remoteness, design contingencies, historic preservation, and overhead.

The implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation of the actions in the approved general management plan would likely take many years. Additionally, some of the future long-term funding needed to implement the various actions called for in this alternative is anticipated to come from nonfederal partners.

One-time Costs

Projects are identified as either Phase 1, Phase 2, or Phase 3 as described in the alternatives.

The prioritization of facility projects would be determined through the park’s asset management plan.

Projects that involve historic preservation treatments (stabilization, preservation, and rehabilitation) and replacement of infrastructure and other facilities would address deferred maintenance. Examples of these projects include preservation treatments to historic structures in poor and fair condition that contribute to the National Historic Landmark and upgrades to the water and electrical systems.

Projects could be jointly funded through partnerships with state agencies, religious institutions, and nongovernmental organizations through cooperative agreements. Shared funding with the Roman Catholic Church in the State of Hawai’i and Hawai’i Conference Foundation for rehabilitation of the churches at Kalaupapa are examples of partnership projects. Other joint funding projects could include those necessary for the development of visitor services run by a concession or nonprofit entity.

Boundaries and Land Protection

The NPS would continue to act on the enabling legislation direction to explore land donation or exchange with DHHL, DLNR, and other landowners during the life of the GMP.

The findings of the Hawai’i Area Studies that fulfilled the direction of Public Law 105-355, Sec. 511 would continue to be valid, and Congress could decide

to act on the study’s findings. The two pertinent sections of the Hawai’i Area Studies were the “Kalaupapa Settlement Boundary Study Along the North Shore to Hālawā Valley, Molokai” and the “Study of Alternatives—Hālawā Valley, Molokai” completed in 2000. Both studies surveyed and analyzed the area’s natural and cultural resources and determined that they are of national significance. It was determined that management by the NPS and designating these areas as part of the national park system would provide the most effective long-term protection of the area and provide the greatest opportunities for public use. The recommended areas would complement and enhance Kalaupapa NHP’s legislated purpose “to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features” (Public Law 95-565, Sec. 102). In 2000, the position of the local community favored local community management of the North Shore over any management by non-Molokai entities and state and federal agencies.

Alternative A: No Action

Alternative A is the no-action alternative and assumes that management, programming, facilities, staffing, and funding would generally continue at their current levels in the near term. The emphasis of the no-action alternative would be to protect the values of Kalaupapa NHP without substantially increasing park operations. Resource preservation and protection would continue to be a high priority for NPS management of Kalaupapa NHP.

The no-action alternative is required by the National Environmental Policy Act and also serves as a baseline for comparison in evaluating the changes and impacts of the other three alternatives.

For this GMP, the no-action alternative predominantly focuses on near-term guidance while the DOH and patient community exists at Kalaupapa. Upon the departure of DOH from Kalaupapa, this alternative does not provide much long-term guidance with respect to visitation, use of historic buildings, and other aspects of management. Many of the visitor rules and regulations would no longer be valid and viable without DOH management. The nature and extent of visitation to Kalaupapa could dramatically change in unknown ways without direction from a long-range plan.

Where appropriate, alternative A does provide some long-term guidance for park management related to partnerships and cooperative agreements, resource management, use in areas of the park outside the Kalaupapa peninsula, access and transportation, sustainable practices, safety and security, and operations.

The following management guidance, desired conditions, and actions would be in addition to what is listed in “Actions Common to All Alternatives.”

Management Zones

There would be no management zoning guidance under alternative A since the park does not have a management zoning scheme. Management guidance would continue according to legislation, state regulations, Kalawao County and patient resident rules and regulations, and NPS policies.

Historic Structures

The NPS would employ historic preservation treatments to protect historic structures on a case-by-case basis and as funding allows. The NPS would continue to conduct condition assessments of historic structures and stabilize historic buildings until a future use is identified.

Staffing

Alternative A assumes current staffing levels would be maintained at 40 permanent base funded full-time equivalent (FTE) staff. Staffing numbers for Kalaupapa NHP reflects the NPS’s focus on managing resources, preserving historic structures, and maintaining the character of the Kalaupapa Settlement and community. Staff for visitor protection provides the law enforcement needed to oversee the park. The NPS also maintains approximately 12 temporary positions funded by projects.

Table 3.2 Alternative A Staffing by Division

Alternative A Staffing by Division	Base Funded
Management and Administration	3
Cultural Resources	5
Natural Resources	6
Facilities and Maintenance	19
Visitor Protection	6
Interpretation and Education	1
Total Staff	40

Cost Estimates

Annual Operating Costs

The park’s annual operating budget for fiscal year 2012 was \$4,230,000. There would be no additional operations and maintenance costs related to capital investments.

Table 3.3 Alternative A Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	None (40 FTE current)
Additional Staffing Costs	\$0
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$0
Total Annual Operational Costs	\$4,230,000

One-time Capital Costs

The estimated costs for alternative A reflect the continuation of current management, including the current level of facilities which are mostly historic structures. One-time costs for alternative A include projects for historic preservation; deferred maintenance; and life, health, and safety that would occur under current management but are not yet funded (see Table 3.4). Deferred maintenance projects would involve stabilization and rehabilitation of historic structures, as well as improvements to infrastructure to eliminate health and safety hazards and address structural deficiencies.

Alternative A focuses on stabilization and basic preservation of historic structures, maintaining current non-historic facilities, and making necessary updates to infrastructure. No new construction is proposed under alternative A. Although no additional buildings have been identified for removal, some historic structures that are in poor condition may be lost in the long term. Several non-historic outbuildings (such as garages and storage sheds) with no anticipated future use would not receive any project funds beyond maintenance.

Under alternative A, projects are identified as either phase 1 or phase 2. Phase 1 projects are considered essential: this category includes cultural resource/historic preservation treatments that are necessary to ensure the long-term integrity of NHL-contributing structures; as well as life, health, and safety-related projects; infrastructure and access maintenance; and basic visitor services. Phase 1 projects total \$16,700,000. Since alternative A lacks specific long-term guidance, the NPS would continue to preserve historic structures contributing

to the NHL in the near term and long term. Most of the total cost is attributed to rehabilitation of historic structures and rehabilitation of the electrical system. Alternative A has the highest phase 1 cost because the NPS would continue to follow existing guidance for preservation of historic structures indefinitely.

Phase 2 projects include significant historic building upgrades, non-historic structure (including infrastructure) rehabilitation, and additional cultural resources projects. Phase 2 projects total \$7,830,000. Most of this cost is from historic preservation of NHL-contributing structures, additional rehabilitation work for the electrical system, and the re-paving of roads.

Under Alternative A, there would be no phase 3 projects.

NPS costs would total \$24,530,000. Additional partner contributions for shared projects would total \$900,000. Most of these projects are related to the historic preservation of church buildings with partner contributions coming from religious institutions. The gross cost estimate, including partner contributions, would total 25,520,000. (Note: all costs are in 2012 dollars). Cost estimates for alternative A are identified below in Table 3.4 and follow the guidance outlined in the “Actions Common to All Alternatives” section as described under “One-time Costs.”



NPS staff and volunteers from Kaneohe Congregational Church clear vegetation and document cemetery resources. NPS photo.

Table 3.4 Alternative A One-time Cost Estimates

Project Description	Historic Stabilization	Historic Preservation	Historic Rehabilitation	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	Other Project (non-facility)
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)						
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites	720,000	1,290,000	340,000			
Safety / Hazardous Waste: Inspect fire suppression system and conduct hazardous materials assessment						30,000
Infrastructure: Rehabilitate water supply facilities and electric system; maintain pump house and fuel storage				10,000	2,250,000	
Access: Continue to rehabilitate and maintain the pali trail			740,000			
Operations: Stabilize, preserve, and rehabilitate operational facilities for maintenance and NPS operations	140,000	410,000	3,160,000	90,000		
Housing: Stabilize, preserve, and rehabilitate historic buildings for NPS employee housing	80,000	870,000	6,450,000			
Community Use: Stabilize or preserve Paschoal Hall and Mother Marianne Library for continued community use	10,000	110,000				
TOTAL PHASE 1	16,700,000	950,000	2,680,000	100,000	2,250,000	30,000

Project Description		Historic Stabilization	Historic Preservation	Historic Rehabilitation	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	Other Project (non-facility)
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)							
Cultural Resources: Museum catalog backlog and museum upgrades, preserve select historic structures		25,000		190,000			150,000
Infrastructure: Re-pave roads and rehabilitate electrical system			10,000			3,220,000	
Operations: Stabilize and preserve operational facilities for maintenance and NPS operations		435,000	240,000		140,000		
Housing: Stabilize and preserve historic buildings for NPS employee housing		590,000	2,320,000				
Interpretation: Preserve the visitors pavilion for interpretation			70,000				
Community Use: Stabilize, preserve, or rehabilitate the Kalawao Pavilion, chapel at Bay View, Lion’s Club Pavilion, and recreation hall		110,000	50,000	210,000			
Damien Tour Operations: Continue to stabilize and maintain the bar, storage facility, and slaughterhouse restroom facility		70,000					
TOTAL PHASE 2	7,830,000	1,230,000	2,690,000	400,000	140,000	3,220,000	150,000
PHASE 3 (Concessions— Long-term)							
Under Alternative A, there would be no concession projects.							
ALTERNATIVE A TOTALS							
PHASE 1	16,700,000	950,000	2,680,000	10,690,000	100,000	2,250,000	30,000
PHASE 2	7,830,000	1,230,000	2,690,000	400,000	140,000	3,220,000	150,000
PHASES 1 AND 2	24,530,000	2,180,000	5,370,000	11,090,000	240,000	5,470,000	180,000
<i>Additional Partner Contributions</i>	<i>\$900,000</i>	<i>20,000</i>	<i>450,000</i>	<i>270,000</i>	<i>0</i>	<i>0</i>	<i>170,000</i>
<i>Total with Partnership Funding</i>	<i>\$25,520,000</i>	<i>2,200,000</i>	<i>5,820,000</i>	<i>11,360,000</i>	<i>240,000</i>	<i>5,470,000</i>	<i>330,000</i>

Alternative B

Alternative B focuses on Kalaupapa’s special or sacred places celebrated and made legendary by stories. The primary focus of alternative B is to maintain Kalaupapa’s spirit and character with an emphasis on the period between 1866 and 1969, by continuing to maintain the many visitor regulations that exist today. Under alternative B, the NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations. The direction for this alternative would be similar to alternative A, but would provide future guidance for managing Kalaupapa once the DOH leaves.

Under alternative B, Kalaupapa’s many resources would be managed to protect, maintain, and in some cases, enhance their integrity. These resources include Kalaupapa’s cultural landscape, historic structures, and natural resources. Due to the limited visitation under this alternative, many of the historic buildings in the Kalaupapa Settlement would not have an interior use and would be stabilized until an interior function is identified. Most of Kalaupapa’s historic buildings and facilities would be for park operations.

The NPS would recommend the designation of highly significant resources to ensure their long-term preservation while also bringing more recognition of their regional, national, and international significance to the general public. New designations and changes to existing designations could include expanding the current National Natural Landmark status, local marine managed area, National Register of Historic Places designation for an archeological district and/or traditional cultural property, Wild and Scenic River designation for Waikolu Stream, and World Heritage designation. All new and updated designations would involve consultation with federal, state, and local agencies and partners.

In the long-term, visitor use rules and regulations would be similar to existing conditions in order to preserve the character of Kalaupapa and honor the patient community. The cap of one hundred visitors per day would continue, though access would be available on specific days for special events. Children under the age of 16 would not be allowed to visit Kalaupapa. Overnight use would be managed primarily for those with pre-existing associations and ancestral connections to Kalaupapa. Limited overnight use by the general public

would be explored. Visitors would also continue to need an escort or tour guide to visit all locations outside Kalaupapa Settlement. A nonprofit organization would provide for visitor services, such as lodging, meal service, tours, and merchandise sales. This alternative has the lowest visitation levels among the three action alternatives.

This alternative would focus educational efforts at offsite locations and through outreach in order to provide opportunities for people to learn about Kalaupapa without actually visiting the site. This includes establishing a staffed visitor information facility at Pālā‘au State Park. In addition, the NPS would establish a topside office in Kaunakakai for park functions that do not need to be physically within the park.

The NPS would recommend a boundary modification to Kalaupapa National Historical Park to promote long-term protection of nationally significant resources along the North Shore Cliffs. The boundary modification would include Pelekunu Preserve and a portion of the Pu‘u O Hoku Ranch. These new areas may be managed as a “Preserve” whereby access is maintained and hunting, fishing, and gathering is allowed. Congressional legislation would be required to authorize this boundary modification.

The following management guidance, desired conditions, and actions would be in addition to what is listed in “Actions Common to All Alternatives.”

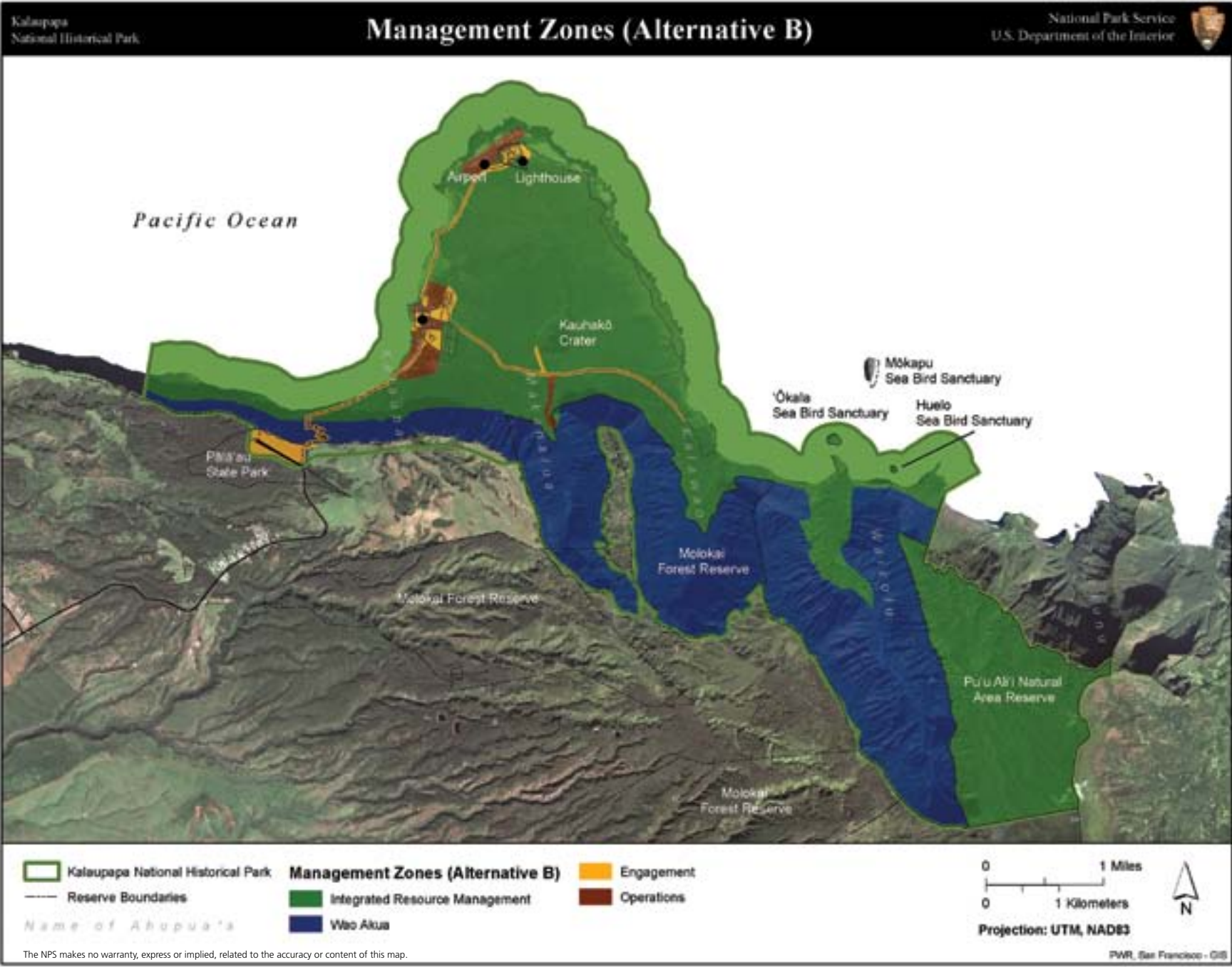
Management Zones

The management zones for alternative B are applied to the landscape to identify an area’s predominant use and desired future conditions. Specific boundaries of the management zones are provided in Figure 3.3. The following description identifies the locations and details for the application of management zones in alternative B.

Integrated Resource Management Zone

The integrated resource management zone would encompass most of the Kalaupapa peninsula, including the Kauhakō Crater, entire marine area, ‘Ōkala and Huelo Sea Bird Sanctuaries, Pu‘u Ali‘i Natural Area Reserve, and some cliff areas below 500 feet.

Figure 3.3 Alternative B Management Zones



Wao Akua (Place of the Spirits) Zone

The wao akua zone generally corresponds to the boundaries of the North Shore Cliffs National Natural Landmark within the park. It would include cliff areas above 500 feet, including the Pu‘u Ali‘i Natural Area Reserve.

Operations Zone

The operations zone would include portions of the Kalaupapa Settlement, including staff housing and maintenance areas. It also includes the airport and road to the well and water tanks.

Engagement Zone

The engagement zone would include the area of Pālā‘au State Park within the boundary of Kalaupapa NHP and portions of the Kalaupapa Settlement. The engagement zone access corridors would extend approximately 25 meters on either side of road centerline in all cases. These corridors would include the pali trail corridor, Airport Road and Kamehameha Street corridor, and Damien Road corridor to Kalawao and Judd Park. This zone would be restricted to corridors necessary for visitor access and select locations within the Kalaupapa Settlement to provide opportunities to learn about and experience Kalaupapa. The engagement zone would be more limited in alternative B as compared to alternatives C and D.

Unescorted access would be allowed in Pālā‘au State Park and the Kalaupapa Settlement. Visitors would need an escort in all other areas of Kalaupapa NHP.

Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP. The actions and strategies in this

section are in addition to those outlined in the “Actions Common to All Alternatives” section.

Kalawao

In the near and long-term, Kalawao would function much as it does today and as described in the “Actions Common to All Alternatives” section. All visitors would continue to need a guide or escort to visit Kalawao, the memorial, and Judd Park on the windward side of the peninsula.

Kalaupapa Settlement

In the near term, Kalaupapa Settlement would function much as it does today and as described in the “Actions Common to All Alternatives” section.

In the long-term, Kalaupapa Settlement would be managed as a cultural landscape with both designed and vernacular characteristics that illustrate its history and national significance. The settlement’s landscape characteristics would be preserved, including the overall spatial organization and layout, circulation systems such as roads and trails, the historic buildings and structures, and the small-scale features that are the personal touches of patients and kōkua. The NPS would allow unescorted public access within the settlement to the base of the pali trail, cattle guard near the airport, and cattle guard on Damien Road to Kalawao.

While the overall character of the settlement would be preserved, the function and uses of some of the neighborhoods and many of the historic structures in Kalaupapa Settlement would change. The goal and

long-term vision is to spatially organize the settlement by concentrating similar uses in to neighborhoods and localized areas within the settlement. This would allow for greater operational efficiencies and promote safety and security for staff, partners, and visitors. The NPS would seek to maintain the functions of many of the buildings at Kalaupapa due to their characteristic building types or



Saint Damien’s grave in Kalawao. NPS photo.

adapt buildings for compatible future uses. In this effort, the GMP team surveyed the buildings and distinct areas of the Kalaupapa Settlement and identified appropriate uses for those areas.

The following description provides guidance for the future use and treatment of clusters within the settlement. This guidance is flexible and is meant to be helpful in making decisions about future functions of buildings and clusters. In the future, park managers may have additional information or conditions may changes for individual structures and building clusters so that a different use or treatment is decided as a better solution.

Buildings, structures, and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve their congregations and visitors with religious affiliations to the churches. These include St Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, and the Church of Jesus Christ of Latter-day Saints.

Existing and future park partners could use and co-manage historic and non-historic buildings. It would be a goal for park partners to share in funding historic preservation work and cyclic maintenance necessary for these historic structures and areas. Park partners are envisioned to be agency partners, institutions, nonprofit organizations, volunteer work groups, school groups, and religious entities whose mission aligns with the purpose of Kalaupapa NHP.

Communal areas that would provide for group activities for park staff, partners, and/or visitors would be located in compatible historic facilities. These include, but are not limited to McVeigh Social Hall, Mother Marianne Library, Paschoal Hall, the Lion’s Club Ocean View Pavilion, and Judd Park Pavilion.

Several buildings and clusters would be used to interpret the lives of patients and kōkua at Kalaupapa in the form of exterior exhibits and some interior exhibits. The main residential area, a portion of Bay View, and a portion of McVeigh would be stabilized as exterior exhibits and then adaptively re-used. Since unoccupied and unused buildings would be at a greater risk of neglect and deterioration over time, stabilizing these historic buildings would ensure their protection. The homesites of former patients could serve as interpretive exhibits, such as Kenso Seki’s homesite and Ed Kato’s studio.

Areas for visitor use would include: 1) buildings for visitor orientation, and 2) buildings and clusters for nonprofit-operated visitor services. Mother Marianne Library would function as the primary visitor orientation and resource center. Upon entering the settlement, at the base of the pali trail, the slaughterhouse and bleacher area would be a staging area for incoming and outgoing tour groups and visitors. A nonprofit or for profit entity would operate Fuesaina’s Bar, the cafeteria, and the Kalaupapa Store for food and beverage services, general groceries, books, and merchandise sales. In the long term, overnight lodging options for visiting groups and individuals would be explored, with the goal of building collaborative partnerships for the rehabilitation of the Visitors’ Quarters, a portion of Bay View, and a portion of McVeigh . These buildings would continue to be stabilized until funds are identified for their rehabilitation.

NPS staff housing and temporary staff housing would be located in the residences along Kamehameha Street, the south side of Damien Road, portions of Staff Row, and the central residential area. Housing in these areas and possibly other locations would support approximately 66 full-time employees and additional temporary or visiting staff. Park operations would include headquarters, offices, maintenance, and storage areas. Park offices would be located in the DOH administration building, the NPS headquarters, police headquarters, the old stone church, and Hale Mālama. Maintenance and warehouse facilities would be along the Damien Road waterfront, motor pool area, recycling center, and pier area.

Peninsula and Kauhakō Crater

The peninsula and Kauhakō Crater would continue to be managed for their cultural, terrestrial, geologic, and marine resource values. The NPS would focus on research, monitoring, and management activities that promote long-term stewardship of the ‘āina. Public access to the peninsula and Kauhakō Crater would require an NPS or partner escort in order to protect the area from potential adverse uses and activities.

Pālā‘au State Park

A staffed visitor information facility would be established at Pālā‘au State Park in cooperation with DHHL and DLNR. The facility would provide interpretive and in-depth educational information through exhibits and possible merchandise sales. It would also provide orientation information for visitors seeking to learn about Kalaupapa and for people who descend the pali trail to Kalaupapa.

Visitors would continue to have free and unescorted access on the premises of Pālāʻau State Park within the boundary of Kalaupapa NHP.

Management Structure, Partnerships, and Agreements

Same as alternatives C and D

Cultural Resources

In addition to the management strategies in the “Actions Common to All Alternatives” section, the NPS would preserve cultural resources through research, stabilization, and formal investigations. Cultural resource preservation efforts would focus on ethnographic research with ‘ohana. Historically significant structures and cultural landscape features would be stabilized for protection. Many of these features and structures would be stabilized until a future use is identified. Efforts would be made to identify, stabilize, and mark gravesites and provide access for families.

Values, traditions, and practices of traditionally associated people (also known as ethnographic resources) and museum collections would be managed the same as alternatives C and D.

Archeological Resources

In addition to the “Actions Common to All Alternatives” guidance, the NPS would increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalau-papa peninsula archeological district and/or a traditional cultural property designation.

Historic Structures

Buildings and structures defined as “historic” are those that were constructed between 1866 to 1969 which is the proposed period of significance in the draft Kalaupapa Settlement National Historic Landmark updated nomination. The NPS would develop and implement historic structures report(s) for all historic structures that contribute the National Historic Landmark which emphasizes stabilization, preservation, rehabilitation, and adaptive use, where appropriate.

As possible, historic structures would be rehabilitated and adaptively used for visitor facilities, partner uses, park operations, and interpretive exhibits. The NPS would continue to conduct condition assessments of historic structures and regularly review and update the List of Classified Structures. The NPS would work with its partners to identify appropriate preservation treatments.

To accomplish the goals outlined for historic structures and facilities within the Kalaupapa Settlement and throughout the park, appropriate historic pres-ervation treatments have been identified for each building. See the section on “Kalaupapa Settlement” that describes the future uses of building clusters and specific historic structures within the settlement.

Cultural Landscapes

In addition to the “Actions Common to All Alternatives” guidance, the NPS would improve the overall condition of Kalaupapa’s documented cultural landscapes within the boundary of Kalaupapa NHP, including the Kalaupapa and Kalawao settlements and Molokai Light Station. The NPS would develop a cultural landscape report that identifies long-term strategies to halt fragmenta-tion and incremental loss of cultural landscape features and integrity and that prescribes preservation treatments for landscape characteristics and features. The NPS would increase support for documentation and research related to Kalaupapa’s cultural landscape features, including research on identifying cul-tural traditions expressed in the landscapes. The NPS would focus on stabiliza-tion of landscape features, so that further resources are not lost.

The cemeteries in Kalaupapa NHP serve as the final resting place for thousands of Hansen’s disease victims and the kōkua who assisted them. As such, they are important places in the history of Kalaupapa and for the thousands of descen-dants with ancestors who were exiled at Kalaupapa. As memorials, Kalaupapa’s cemeteries would be cared for with utmost respect. The NPS would continue active management and care of known cemeteries, including ongoing stabiliza-tion of known gravesites.

There would be an increase in support for research that would identify cul-tural traditions expressed in the landscapes. Work would occur with natural resources staff to develop and implement an integrated pest management plan to protect sensitive areas. In addition, the NPS would expand the native plant nursery program to include fruit trees, legacy trees, and additional rare and

endangered plants and work to manage fruit and legacy trees in coordination with the natural resources management program.

Natural Resources

Air quality, soundscapes, lightscapes, water resources, soils and geologic resources, wildlife, scenic resources, and fishing, hunting, and gathering would be managed the same as alternatives C and D.

Marine Resources

The NPS would explore establishing a managed area within the marine portions of the park, in consultation with DLNR and community part-ners, to include areas with high fish biomass and/ or other important marine resources. Monitor-ing and research would continue and would use both traditional and contemporary methods to track status and trends of fisheries and marine wildlife and conditions in the intertidal zone and coastal reefs.

Vegetation

In addition to the management strategies in the “Actions Common to All Alternatives” for vegeta-tion management, the NPS would continue the vegetation monitoring program to track status and trends of individual plant species and their communities in the historical park. The nursery program would be expanded to include fruit trees, legacy trees, and additional rare and endangered plants. Management of culturally significant vegetation would be done in coordination with the cultural resources staff, including carrying out an integrated pest management plan.

Interpretation and Education

The NPS would focus the content of interpretive and educational programs on the park’s updated interpretive themes that were developed as part of this GMP effort through the public planning process. They are described in Chapter 2.

To fulfill this desire for more interpretation about Kalaupapa in the long-term, the NPS would build on the growing interpretation and education division, including hiring staff to support a range of interpretive opportunities, including onsite interpretation, educational programs, and outreach programs to reach people who may not be able to visit the park. The interpretation and education division would work in collaboration with the other park resources programs in the development of interpretive and educational materials. The use of volunteer interpreters supervised by professional NPS interpreters would be emphasized.

The focus of most of the interpretive and educational efforts in alternative

B would be on engaging people at offsite locations and through extensive outreach programs. This would provide opportunities for people to learn about Kalaupapa without having to physically visit the site. Engage-ment would also occur at a visitor contact station inside the park boundary at Pālāʻau State Park, through outreach to schools, and through interpretive media. Interpre-tive media would be developed, such as publications, exhibits, a film, and educational websites. Outreach programs would be tar-geted to youth and communities on Molokai, on other Hawaiian Islands, the mainland, and at related international sites. Outreach materials could include web-based materi-als, podcasts, and networking with other relevant sites throughout the world. The NPS would develop curriculum-based educational

programs and materials, such as lesson plans and traveling educational exhibits about Kalaupapa. This could be done in partnership with educational institu-tions in Hawai’i and abroad.

At Kalaupapa, there would continue to be limited interpretive and educational opportunities, however there would be improvements over the existing condi-tions. Mother Marianne Library would be converted to a visitor orientation facility. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen’s disease commu-nity at Kalaupapa.



Hedychium coronarium, Puʻu Aliʻi Natural Area Reserve. NPS photo.

An updated long-range interpretive plan would be developed to plan for the future of the park’s interpretive and educational goals. The plan would include identifying visitor experience goals, developing subthemes of the interpretive themes, and more detailed planning for specific sites within the park. It would provide recommendations about interpretive media, interpretive facilities, personal services, and direction for a wide range of interpretive and educational programs and partnerships.

Visitor Use and Experience

Visitor use at Kalaupapa was identified as one of the most important issues.

In the near term, visitor use would continue to be managed by DOH and NPS, and DOH rules and regulations for visitation would continue in order to provide a well-maintained community for the patient residents and to protect their privacy. This is common to all of the alternatives. In the long-term, it is anticipated that the NPS would manage visitor use and visitor facilities.

Alternative B contains restrictions for visitor access at Kalaupapa while focusing efforts on information and interpretation for the public offsite. Most of the general public would experience Kalaupapa through education and interpretation offsite. There would be efforts to provide and disseminate information about Kalaupapa through multiple mediums. There could be offsite locations for interpretation such as the Ho’olehua airport and at the Pālā’au State Park. Information and exhibits about Kalaupapa would be developed for visitor orientation at locations throughout the park. Signs, multi-media, waysides, and contact stations would be improved and developed. NPS would also work with partner organizations to assist with efforts to disseminate and deliver current information.

In the near term, the existing rules and regulations on number of visitors, access, age limit, overnight use, and recreational activities would continue as in the common to all alternatives guidance.

Number of Visitors

In the long-term, general public visitation would be limited to 100 people per day at any one time. This is the same as the current cap on visitation. Visitation would be through tours that would rely on concessions contracts and commercial use authorizations. More opportunities to visit Kalaupapa would be available on specific days, such as family days, for special events for people with ancestral connections to Kalaupapa.

Orientation

Orientation information would be provided offsite and at key entrance points within the park boundary. Visitor information on the internet and at offsite locations would prepare visitors for their trip to Kalaupapa. Orientation and interpretive exhibits could be at the Ho’olehua Airport. The NPS would consider establishing an NPS presence for visitor orientation in Kaunakakai and in partnership with other state agencies or entities. In addition to orientation materials, there would be in depth educational materials at the staffed facility at Pālā’au State Park. Information would also be provided at other areas such as trailheads at the top and bottom of the pali trail and at the Kalaupapa Airport for those arriving by plane.

All visitors wishing to enter the Kalaupapa Settlement would be directed to Mother Marianne Library or other facility to receive a required orientation to the park. The orientation would include introducing visitors to the purpose and significance of Kalaupapa and conveying rules and regulations so that visitors are respectful and safe during their visit. Visitors would need to ensure that they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.



At the top of the pali trail. NPS photo.

Access within Kalaupapa

In the long-term, under alternative B, visitors would continue to have free and unescorted access on the premises of the Pālā’au State Park within the boundary of Kalaupapa NHP. Visitors would be allowed to have unescorted access within the settlement. All visitation beyond the Kalaupapa Settlement and Kalawao would require an escort.

Age Limit

In the long-term, under alternative B, children under the age of 16 would be not be allowed to visit Kalaupapa, as it is today. The historical rules forbid patients from raising their children at Kalaupapa. This rule resulted in babies and children being sent away from Kalaupapa to be raised and adopted by family members and other people. Children are currently not allowed to visit Kalaupapa in order to maintain the privacy and well-being of the patient community. This alternative would keep these rules in place and restrict visitation of those 16 and under in honor of the wishes of many in the patient community.

Overnight Use

Under alternative B, there would be limited overnight use. Visitors who have a pre-existing association and/or ancestral connections to Kalaupapa would be allowed overnight access. Limited overnight use by the general public would be explored. The NPS would manage overnight use, and the NPS could delegate management responsibilities to partners, including agencies, concessions, and nonprofit organizations. Select historic buildings and facilities have been identified for overnight use and the areas are described in the “Kalaupapa Settlement” section. The rehabilitation of historic buildings for public overnight use would require securing nonfederal partner contributions. Visitor accommodations would need to meet basic life safety codes. Camping would not be allowed in Kalaupapa NHP.

Commercial Visitor Services

Same as alternatives C and D

Sustainable Practices and Responses to Climate Change

Same as alternatives C and D

Access and Transportation Facilities

In the near term, management of land access, the pali trail, air access, the Kalaupapa airport, sea access, Kalaupapa pier would continue as in the common to all alternatives guidance. Kalaupapa’s roads and trails would be managed same as alternative C.

In addition, NPS would enhance the pali trail by clearing vistas, establishing rest stops, and defining places for mules to pass along the trail. In addition, the NPS would continue to assist the local community with trail planning adjacent to the park on topside Molokai.

Operations

Operational Facilities

Same as “Actions Common to All Alternatives”

Safety and Security

Same as alternative C and D



Artwork by patient resident Ed Kato. NPS photo.

Staffing

Alternative B would be implemented with the current staffing level (40 base funded) plus 14 full-time equivalent staff (FTEs). The NPS also maintains approximately 12 temporary positions funded by projects.

New positions would be necessary for the expected substantial increase in NPS’s operations to manage the historical park once the DOH departs. NPS staff would replace specific DOH functions for site operations, management of the visitor use, and maintenance of historic buildings. An interpretation and education division would be expanded to share Kalaupapa history with a much broader audience in Hawai’i and nationally and fulfill the educational outreach component of alternative B. Interpretive staff would also be able to provide visitors with information about Kalaupapa at the park and topside at the visitor orientation center at Pālā’au State Park.

Other new positions would include a: budget analyst, human resources specialist, administrative technician, archeological/anthropological technician, horticulturalist, chief of interpretation, interpretive ranger, education specialist, visitor use assistant, carpenter, painter, utility systems repair operator, high voltage electrician, and maintenance worker.

Table 3.5 Alternative B Staffing by Division

Alternative B Staffing by Division	Base Funded
Management and Administration	3+3 new
Cultural Resources	5+1 new
Natural Resources	6+1 new
Facilities and Maintenance	1+4 new
Visitor Protection	19+5 new
Interpretation and Education	1+4 new
Total Staff	54

Cost Estimates

Annual Operating Costs

This alternative would be implemented with an additional 14 FTE as described above. These positions would add approximately \$810,000 to the operating

base for alternative B. Additional operations and maintenance costs related to capital investments would be \$885,000. The total annual operating costs for alternative B would be approximately \$5,925,000 per year.

Table 3.6 Alternative B Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	14 FTE (Total 54 FTE)
Additional Staffing Costs	\$810,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$885,000
Total Annual Operational Costs	\$5,925,000

One-time Capital Costs

The costs to implement alternative B would support the long-term preservation of Kalaupapa’s resources, onsite and offsite interpretive programs, and connecting people with the history of Kalaupapa NHP. The costs include preservation and rehabilitation of historic structures and features, as well as improvements to facilities and infrastructure to eliminate health and safety hazards and to address structural deficiencies and deferred maintenance. The costs include resource management programs, visitor use, and interpretive and educational programs. Costs reflect all proposals of alternative B that could be implemented over the life of the general management plan.

The only new facility proposed under alternative B is a visitor contact station topside. Since alternative B would continue to include restrictions for visitors entering the settlement, a visitor contact station topside would be a critical facility to provide visitor orientation and interpretation and education. The Quonset dormitory is the only structure that has been identified for removal in this alternative. This facility would require a high level of investment to rehabilitate it for long term-use. In addition, some historic structures that are in poor condition may be lost in the long term. Several non-historic outbuildings (such as garages and storage sheds) with no anticipated future use will not receive any project funds beyond maintenance. Adaptive re-use would occur only in the long term for a concession operation.

Projects are identified under three different phases. Under alternative B, the following project types would be included in each phase:

Phase 1 projects are considered essential: this category includes cultural resource/historic preservation treatments that are necessary to ensure the long-term integrity of NHL-contributing structures; as well as life, health, and safety-related projects; infrastructure and access maintenance; and basic visitor services. Phase 1 projects total \$14,155,000. Most of this total cost is attributed to rehabilitation of historic structures and rehabilitation of the electric system.

Phase 2 includes projects that require significant historic building upgrades; non-historic structure (including infrastructure) rehabilitation; and additional cultural resources, interpretation, and education projects. Phase 2 projects total \$16,850,000. Most of this cost is from historic preservation of NHL-contributing structures, additional rehabilitation work for the electrical system, and the re-paving of roads.

Phase 3 includes projects for a concession operation managed by a nonprofit or for-profit entity in the long term when there is no longer a patient community at Kalaupapa. Implementation of these projects would require securing non-federal partner contributions. Phase 3 projects total \$1,210,000, representing the NPS share of rehabilitation costs for historic buildings for visitor services.

NPS costs would total \$32,215,000. Additional partner contributions for shared projects would total \$4,435,000. Most of these projects relate to religious insti-



Slaughterhouse rehabilitation. NPS photo.

tution work on historic church buildings and other buildings for other partner uses. The gross cost estimate, including partner contributions, would total \$36,650,000. (Note: all costs are in 2012 dollars).

Cost estimates for alternative B are identified below in Table 3.7 and follow the guidance outlined in the “Actions Common to All Alternatives” section as described under “One-time Costs.”

Action Plans, Studies, and Agreements

A number of specific action plans, studies, and agreements would be developed to implement alternative B. Some of these items would require additional special project funding or increases to the operating base funding. Plans for actions with potential to affect the environment would require formal analysis of alternatives in compliance with the National Environmental Policy Act, National Historic Preservation Act, and related laws. Such documents would reference and be tiered to alternative B. The following plans and studies would be required to implement alternative B:

- Administrative history
- Cooperative management agreement with Department of Hawaiian Home Lands
- Cultural landscape report
- Historic resources study
- Historic structures report(s)
- Long-range interpretive plan
- Renewable energy feasibility study
- Transition management plan
- Transportation plan

Boundaries and Land Protection

Same as alternative C

Table 3.7 Alternative B One-time Cost Estimates

Project Description	Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)	
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)										
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites. Conduct ethnographic research and develop historic structures report(s).	1,070,000	1,290,000	760,000						250,000	
Natural Resources: Fence areas to reduce feral ungulates and reduce vegetation to protect the settlement									190,000	
Safety / Hazardous Waste: Inspect fire suppression system, conduct hazardous materials assessment, conduct projects identified in the fire management plan									1,230,000	
Infrastructure: Rehabilitate electric system, maintain pump house and fuel storage					10,000	2,240,000				
Access: Continue to rehabilitate the pali trail			740,000							
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	60,000	280,000	3,380,000		90,000					
Housing: Preserve and rehabilitate historic buildings for permanent staff housing		440,000	990,000							
Interpretation, Education, and Visitor Information: Update long-range interpretive plan, develop interpretive exhibits and displays (including historic residences), and develop virtual and off-site educational programs	100,000	50,000				180,000			185,000	
Visitor Services and Community Use: Preserve or rehabilitate Paschoal Hall, Mother Marianne Library, and Lion’s Club Pavilion for community and visitor use		50,000	200,000	370,000						
TOTAL PHASE 1	14,155,000	1,230,000	2,110,000	6,070,000	370,000	100,000	2,420,000	0	0	1,855,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)										
Cultural Resources: Museum catalog backlog, museum upgrades, stabilize and preserve historic structures	360,000		540,000						150,000	

Project Description		Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)
Natural Resources: Monitor air quality and soundscapes, upgrade nursery, explore marine managed area designation										140,000
Interpretation: Produce a park video, construct waysides, and preserve residences as exhibits		315,000		350,000						90,000
Infrastructure: Re-pave roads, rehabilitate electrical system, produce visitor transportation plan							3,220,000			100,000
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations		200,000	60,000	2,840,000		110,000				
Partner Use: Stabilize, preserve, and rehabilitate selected buildings for partner use (NPS share)		15,000	50,000	940,000		60,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent staff housing and remove Quonset Dormitory		15,000	1,330,000	3,410,000					80,000	
Visitor Services and Community Use: Construct new visitor contact station at Pālā’au State Park and rehabilitate McVeigh Recreation Hall and selected restrooms for community and visitor use				860,000	60,000			1,550,000		
TOTAL PHASE 2	16,850,000	905,000	1,440,000	8,940,000	60,000	175,000	3,220,000	1,550,000	80,000	480,000
PHASE 3 (Facility rehabilitation for concession operations and public use—Long-term)										
Concession Operations (commercial or non-profit): Preserve and rehabilitate select historic buildings for basic visitor services (NPS share)			180,000	1,030,000						
TOTAL PHASE 3	1,210,000	0	180,000	1,030,000	0	0	0	0	0	0
ALTERNATIVE B TOTALS										
PHASE 1	14,155,000	1,230,000	2,110,000	6,070,000	370,000	100,000	2,420,000	0	0	1,855,000
PHASE 2	16,850,000	905,000	1,440,000	8,940,000	60,000	175,000	3,220,000	1,550,000	80,000	480,000
PHASE 3	1,210,000	0	180,000	1,030,000	0	0	0	0	0	0
PHASES 1, 2, AND 3	32,215,000	2,135,000	3,730,000	16,040,000	430,000	275,000	5,640,000	1,550,000	80,000	2,335,000
<i>Additional Partner Contributions</i>	<i>\$4,435,000</i>	<i>5,000</i>	<i>1,105,000</i>	<i>3,050,000</i>	<i>0</i>	<i>50,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>225,000</i>
<i>Total with Partnership Funding</i>	<i>\$36,650,000</i>	<i>2,140,000</i>	<i>4,835,000</i>	<i>19,090,000</i>	<i>430,000</i>	<i>325,000</i>	<i>5,640,000</i>	<i>1,550,000</i>	<i>80,000</i>	<i>2,560,000</i>

Alternative C: Preferred Alternative

Alternative C is the NPS preferred alternative. In the spirit of mālama i ka‘āina (care for the land), alternative C emphasizes stewardship of Kalaupapa’s lands to ensure the long-term preservation of the Kalaupapa story about the forced isolation from 1866–1969. Kalaupapa’s diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. These diverse resources include cultural landscapes, historic structures, cemeteries, and intangible resources such as stories, customs, and living traditions. Other significant resources to protect, maintain, and enhance in character include native Hawaiian archeological sites, the natural and dramatic geology of Kalaupapa, and terrestrial and marine resources.

Alternative C would cultivate, establish, and maintain a wide range of partnerships for the long-term stewardship of Kalaupapa. The preferred alternative’s concept focuses on collaboration with agency partners, organizations, and institutions to steward Kalaupapa’s varied lands. Through hands-on stewardship activities, service and volunteer work groups would have meaningful learning experiences focused on Kalaupapa’s history and significance, while contributing to the long-term preservation of the ‘āina. Volunteers engaged in resource management activities would be trained and/or supervised by qualified professionals and would follow resource management protocols and goals. Engaging youth would be a key component to elevating awareness about Kalaupapa in Hawai‘i and nationally. Select historic buildings and neighborhoods would be reserved to provide lodging and administrative space for partners or volunteer service groups. The NPS would direct staff time, funding, and facilities to maintaining and enhancing partnerships. Partnership entities could include state and local agencies, schools and universities, historical institutions, native Hawaiian cultural groups, environmental organizations, neighboring landowners, patient and kama‘āina families, and other nonprofit organizations. Agreements with partners would be updated to reflect the intent and actions of this alternative as necessary.

Many of these partnerships already exist, and the preferred alternative would enhance these partnerships and build new relationships with allied entities throughout Hawai‘i, nationally, and abroad.

As long as patients live at Kalaupapa, the National Park Service would manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the character of the community. DOH and community rules and regulations for visitation and use would not change unless at the discretion and direction of the patient advisory council and DOH.

Visitation by the general public would be supported and integrated into park management. Visitor regulations would change, including allowing children under adult supervision to visit Kalaupapa. The 100 person per day visitor cap would be removed, and the park would engage new mechanisms to limit the number of visitors per day. A day-use entry pass system would be instituted as a free option for visiting the historical park. Visitors would be able to access select areas on their own for personal reflection and learning. A nonprofit organization or concessioner could provide for visitor services such as lodging, meal service, tours, and merchandise sales, if a non-federal partner is identified to share the cost of rehabilitating historic structures for these services. Select historic buildings and building clusters have been identified for potential future overnight visitation by the general public.

The NPS would recommend the recognition of highly significant resources to further highlight their regional, national, and potential international significance to the general public. New designations and changes to existing designations could include expanding the current National Natural Landmark status, local marine managed area, National Register of Historic Places designation for an archeological district, and/or traditional cultural property, Wild and Scenic River designation for Waikolu Stream, and World Heritage designation. All new and updated designations would involve consultation with federal, state, and local agencies and partners.

The NPS would recommend a boundary modification to Kalaupapa National Historical Park to promote long-term protection of nationally significant resources along the North Shore Cliffs. The boundary modification would include Pelekunu Preserve and a portion of the Pu‘u O Hoku Ranch. These new areas may be managed as a “Preserve” whereby access is maintained and hunting, fishing, and gathering is allowed. Congressional legislation would be required to authorize this boundary modification.

Operations Zone

The operations zone would include portions of the Kalaupapa Settlement, including staff housing and maintenance areas. It also includes the airport and road to the well and water tanks.

Engagement Zone

The engagement zone would include the area of Pālā‘au State Park within the boundary of Kalaupapa NHP, the majority of the Kalaupapa Settlement, cemeteries to provide access for ‘ohana, and Kalawao, including the churches, the memorial, and Judd Pavilion. The engagement zone access corridors would extend approximately 25 meters on either side of road centerline in all cases. These corridors would include the pali trail corridor, Airport Road and Kamehameha Street corridor, and Damien Road corridor to Kalawao and Judd Park, and Kauhakō Crater Road. Alternative C provides increased areas for visitor engagement as compared to alternative B, in order to promote resource stewardship through hands-on activities and personal engagement.

Unescorted access would be allowed in all areas of the engagement zone. In order to access areas to the east of Kalaupapa Settlement within the engagement zone, visitors would need to receive an orientation and entry pass.

The intent of resources management would be to maintain and enhance the integrity of resources through active management and stewardship opportunities with partners, visitors, and service groups.

Management Zones

The management zones for the preferred alternative are applied to the landscape to identify an area’s predominant use and desired future conditions. Specific boundaries of the management zones are provided in Figure 3.4. The following description identifies the locations and details for the application of management zones in alternative C.

Integrated Resource Management Zone

The integrated resource management zone would encompass most of the peninsula, including the Kauhakō Crater, entire marine area, ‘Ōkala and Huelo Sea Bird Sanctuaries, Pu‘u Ali‘i Natural Area Reserve, and some cliff areas below 500 feet.

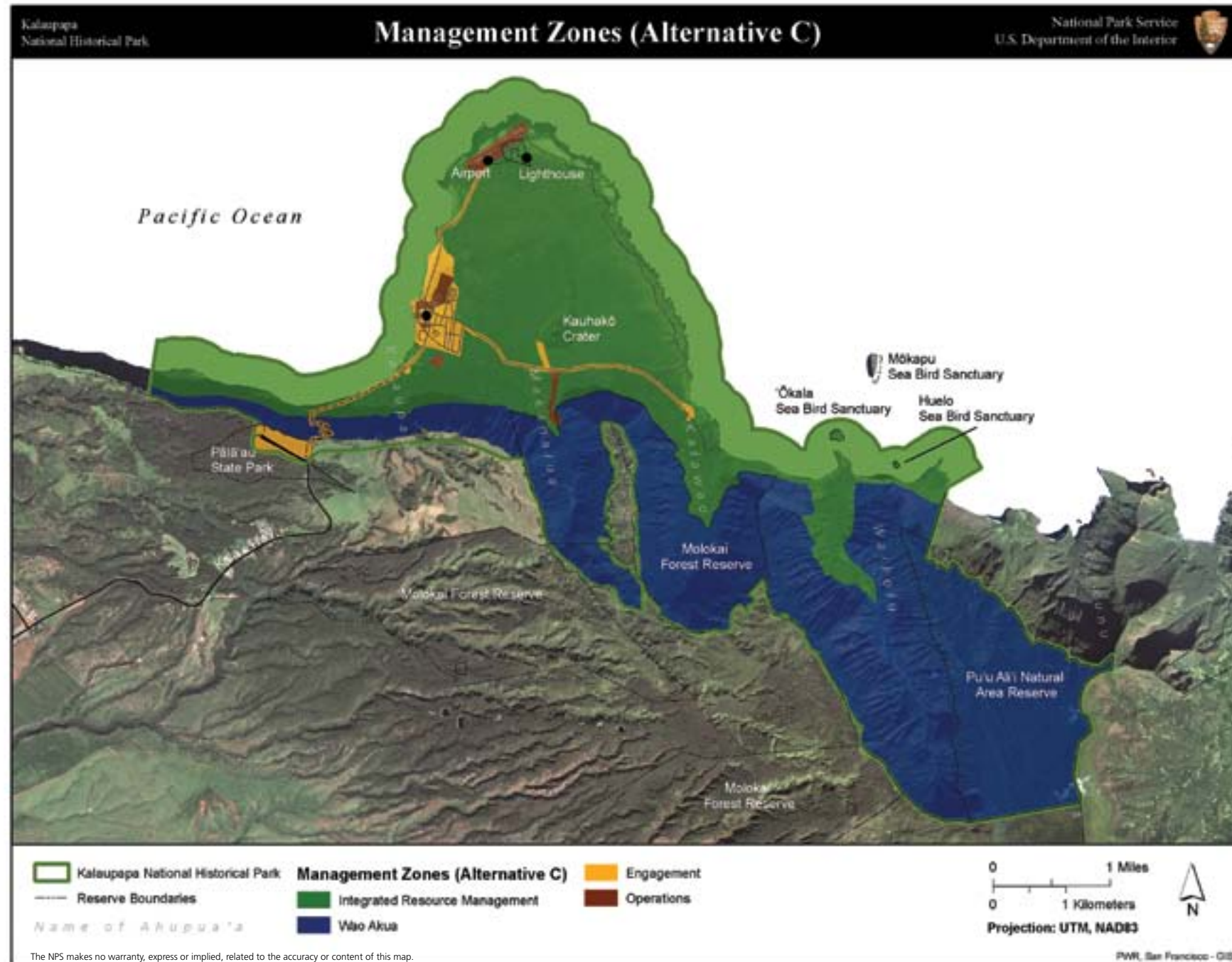
Wao Akua (Place of the Spirits) Zone

The wao akua zone generally corresponds to the boundaries of the North Shore Cliffs National Natural Landmark within the park. It would include cliff areas above 500 feet, including the Pu‘u Ali‘i Natural Area Reserve.



Gravesite at the Kauhakō Crater. NPS photo.

Figure 3.4 Alternative C: Preferred Alternative Management Zones



Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP. The actions and strategies in this section are in addition to those outlined in the “Actions Common to All Alternatives” section.

Kalawao

In the near and long-term, Kalawao would function much as it does today and as described in the “Actions Common to All Alternatives” section. In addition, the NPS would allow unescorted public access to Kalawao on Damien Road to visitors who obtain an entry pass at the NPS orientation center at Paschoal Hall. Prior to receiving the entry pass to Kalawao, first-time visitors would be oriented to the history of Kalaupapa and the historic park rules and regulations. Unescorted public access would provide greater opportunities for visitors to see and experience Kalawao on the windward side of the peninsula.

Kalaupapa Settlement

In the near term, Kalaupapa Settlement would function much as it does today and as described in the “Actions Common to All Alternatives” section.

In the long-term, Kalaupapa Settlement would be managed as a cultural landscape with characteristics that illustrate its history and national significance. The settlement's landscape characteristics would be preserved, including the overall spatial organization and layout, circulation systems such as roads and trails, the historic buildings and structures, and the small-scale features that include the personal touches of patients and kōkua. The NPS would allow unescorted public access to the settlement from the pali trail and within the settlement to the cattle guard near the airport and cattle guard on Damien Road to Kalawao.

While the overall character of the settlement would be preserved, the function and uses of some of the neighborhoods and many of the historic structures in Kalaupapa Settlement would change. The goal and long-term vision is to concentrate similar uses into specific neighborhoods and localized areas within the settlement. This would allow for greater operational efficiencies and promote safety and security for staff, partners, and visitors. The NPS would seek to

maintain the functions of many of the buildings at Kalaupapa due to their characteristic building types or rehabilitate buildings for compatible future uses. In this effort, the GMP team surveyed the buildings and distinct areas of the Kalaupapa Settlement and identified appropriate uses for those areas.

The following description provides guidance for the future use and treatment of clusters within the settlement. This guidance is flexible and is meant to be helpful in making decisions about future functions of buildings and clusters. In the future, park managers may have additional information or conditions may change for individual structures and building clusters so that a different use or treatment is decided as a better solution.

Buildings, structures and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve their congregations and visitors with religious affiliations to the churches. These include St Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, and the Church of Jesus Christ of Latter-day Saints.

Existing and future park partners could use and co-manage historic buildings at the Bishop Home, along Kamehameha Street, in the central residential area of the settlement, and in the beach house area. The Bishop Home could serve as a nondenominational retreat facility if nonfederal partner contributions were secured. Park partners would share in funding historic preservation work and cyclic maintenance necessary for these historic structures and areas. Park partners are envisioned to be agencies, institutions, nonprofit organizations, volunteer work groups, school groups, and religious entities whose missions aligns with the purpose of Kalaupapa NHP.

Communal areas that would provide for group activities for park staff, partners, and visitors would be located in compatible historic facilities. These include, but are not limited to, McVeigh Social Hall, Mother Marianne Library, Paschoal Hall, Lion's Club Ocean View Pavilion, and Judd Park Pavilion.

Some buildings and clusters would be used to interpret the lives of patients and kōkua at Kalaupapa. A select few residential homesites of patients could serve as interpretive exhibits, such as Kenso Seki's homesite and Ed Kato's studio. Historic residential homesites in the main residential area and other specific historic structures would be stabilized as exterior exhibits in the event that a

use is not identified. Other important historical figures at Kalaupapa such as Bernard Punikaia and Richard Marks could have their stories featured as exhibits at Paschoal Hall or Hale Mālama.

Areas for visitor use would include: 1) buildings for visitor orientation, and 2) buildings and clusters for concession or nonprofit operated visitor services. Paschoal Hall would function as the primary interpretive and orientation center and multipurpose space. It would be a hub for orienting visitors when they first arrive at the settlement. Paschoal Hall would house interpretive exhibits and could be used for film screenings, presentations, and other group functions. Mother Marianne Library could function as a resource center about Kalaupapa and for volunteer orientation and training. At the base of the pali trail upon entering the settlement, the slaughterhouse and bleacher area would be a staging area for incoming and outgoing tour groups and visitors.

The park would also explore ways to provide a variety of visitor services housed in compatible historic buildings and clusters, and operated by a concession or nonprofit organization. The rehabilitation of structures for visitor services would require securing nonfederal partner contributions and could be incrementally phased in over time. Fuesaina’s Bar, the cafeteria, and the Kalaupapa Store could be used for food and beverage services, general groceries, books, and merchandise sales. The Visitors’ Quarters, Bay View, Staff Row, and McVeigh could be used for overnight lodging for visiting groups and individuals. The DOH administration building could be used for concessions offices, and select storage and maintenance facilities would need to be identified for concessions use. Buildings identified for potential future visitor use would continue to be stabilized until funds are found for their rehabilitation.

NPS staff housing and temporary staff housing would be located into the residences along the south side of Damien Road (including the Quonset), the main residential and central residential areas, and beach houses. These areas

would serve as the primary areas for staff housing. Housing in these areas and possibly other locations would support approximately 69 full-time employees and additional temporary or visiting staff. Park operations would include headquarters, offices, maintenance, and storage areas. Park offices would be located in the NPS headquarters, police headquarters, the old stone church, Hale Mālama, and DOH care facility. Maintenance and warehouse facilities would be located along the Damien Road waterfront, motor pool area, recycling center, and pier area.



Boys at Kalaupapa, early 1900s. Photo courtesy of Damien Museum.

Peninsula and Kauhakō Crater

The peninsula and Kauhakō Crater would continue to be managed for their cultural, terrestrial, geologic, and marine resource values. The NPS would focus on research, monitoring, and management activities that promote long-term stewardship of the ‘āina. Public access to the peninsula would require an NPS or partner escort in order to protect the area from potential adverse uses and activities. Unescorted public access to the rim of Kauhakō Crater from Damien Road would be allowed to visitors who have an entry pass obtained at the NPS orientation center.

Pālā‘au State Park

Visitor facilities at the Kalaupapa Overlook at Pālā‘au State Park would be improved.

The NPS would establish a kiosk that provides interpretive and orientation information for visitors seeking to learn about Kalaupapa and those who descend the pali trail to Kalaupapa. Visitors would continue to have free and unescorted access on the premises of Pālā‘au State Park within the boundary of Kalaupapa NHP.

Management Structure, Partnerships, and Agreements

Same as “Actions Common to All Alternatives” plus the following additions included in this section.

Once DOH departs Kalaupapa, it is envisioned that the NPS would assume full management of Kalaupapa’s resources, visitor use, and operations and would continue to manage Kalaupapa in cooperation with DHHL, DLNR, and DOT through cooperative agreements, lease agreement, and possible acquisition and/or transfer of land and resources to the NPS.

Cooperative Agreements

Existing cooperative agreements with DOH, DLNR, DOT, and the lease with DHHL would continue.

Department of Health Partnership

The NPS and DOH would continue to collaborate and update the transition plan that would guide the turnover of management responsibilities for visitor use, historic structures and facilities, and operational responsibilities.

Department of Hawaiian Home Lands Partnership

In the long-term, the NPS would continue to have use of buildings and facilities at Kalaupapa. Ownership of the buildings would transfer from DOH to DHHL once the DOH departs Kalaupapa. The NPS and DHHL would update the lease and could extend the lease for longer than its current end date in 2041. The NPS and DHHL could develop a cooperative agreement to define roles and responsibilities for the long-term care and use of the Kalaupapa Settlement and DHHL lands within the park boundary. The cooperative agreement with DHHL would be effective upon DOH’s departure.

As part of the stewardship and partnership emphasis in the preferred alternative, the NPS would consult with DHHL for the development of educational, stewardship, and cultural programs. These programs would highlight the story of forced isolation from 1866–1969 and native Hawaiian history and traditions related to the many stories of Kalaupapa and would promote the ethic and practice of mālama i ka‘āina.

The NPS may continue to act on the enabling legislation direction to explore land donation or exchange with DHHL during the life of the GMP.

Homesteading

The lands owned by DHHL at Kalaupapa and leased to the NPS are currently co-managed by the NPS and DOH in consultation with DHHL. The primary

intent of NPS management of DHHL lands is to preserve and perpetuate Kalaupapa’s stories of the Hansen’s disease patient community and the ‘āina. Once the patient community is no longer living at Kalaupapa, and the DOH terminates the operation at Kalaupapa, the NPS would manage Kalaupapa in close cooperation and consultation with DHHL.

Questions from concerned citizens about native Hawaiian homesteading on DHHL lands at Kalaupapa have centered on possible use of historic lo‘i systems at Waikolu Valley, which are actually on DLNR lands. Few people proposed homesteading on the Kalaupapa peninsula due to the unique and compelling story of forced isolation of the people of Hawai‘i afflicted with leprosy from 1866–1969, its remote location, the thousands of unmarked gravesites, and the historic landscape. Concerned people include patient residents, ‘ohana of patient residents, kama‘āina of Kalaupapa, native Hawaiians, Molokai residents, and members of the general public. At every public meeting held for this GMP, people who commented on the topic of homesteading either strongly supported or did not support it at Kalaupapa. Those who supported the idea, including native Hawaiian beneficiaries, felt that it was the right of native Hawaiians, especially the kama‘āina of Kalaupapa, to homestead on their home lands. A majority of people who commented opposed homesteading. Many stated that traditional homesteading is not compatible with preserving and protecting the story of forced isolation and the sacredness of Kalaupapa. There were also concerns about the extremely high cost of maintaining a homesteading community in a geographically isolated location.

Department of Hawaiian Home Lands has assigned special land conservation designations for its lands at Kalaupapa that discourage homesteading and encourage perpetuation of the special nature and historical significance of the Hansen’s disease settlement. DHHL has not zoned the lands for homesteading. Under the provisions of the lease between the NPS and DHHL “DHHL shall have the right to withdraw from the operation of this lease all or any portion of the demised land for the purposes of the Hawaiian Homes Commission Act” which includes making lands available for homesteads (General Lease No. 231, 1992, p. 5). However, in the event DHHL withdraws land or terminates the lease before its expiration in 2041, the NPS would be entitled to full compensation for the NPS’s investment in improvements to the property which is estimated to be approximately \$40 million. Further, DHHL would need to give the NPS five years notice of a withdrawal and provide an opportunity for the State of Hawai‘i Department of Health and patients to submit their concerns. Thus,

in order to allow homesteading, the conditions of the general lease would need to be modified and/or DHHL would need to formally withdraw lands under the provisions in the general lease which would affect the lease rental (currently the NPS pays DHHL \$230,000 per year for the lease rental.)

The NPS does not have the authority to regulate homesteading; rather the NPS can only make recommendations within this GMP. The NPS recommends that no homesteading occur in the Kalaupapa Settlement. If DHHL were to allow homesteading in the future, the NPS would recommend that such activity be limited and that the homesteaders be engaged in activities that support the purpose of the park.

The DHHL *Moloka‘i Island Plan* (2005) states, “The character of Kalaupapa would be retained as a unique community whose legacy is to be defined by its wide range of historical use.” Major factors influencing land use decisions at Kalaupapa include preserving and perpetuating the living legacy of Hansen’s disease residents, interest of the NPS to retain long-term involvement with Kalaupapa, improvements to infrastructure, limited access, beatification of Mother Marianne Cope, and canonization of Father Damien (*Moloka‘i Island Plan* p. 6-3, 6-4). The plan’s identified land uses within the boundaries of Kalau-papa National Historical Park include 621 acres zoned as “Special District,” which includes the settlement area; 7 acres zoned as “Community Use”; 5 acres zoned as “Commercial” within Pālā‘au State Park; 609 acres zoned as “Conser-vation” along the cliffs; and approximately 38 acres at Pālā‘au State Park within the NPS boundary zoned as “Special District.” See DHHL *Moloka‘i Island Plan* 2005, Kalaupapa-Pālā‘au Preferred Land Use Plan.

Considering DHHL’s plans for Kalaupapa, the general lease, and the purpose of Kalaupapa NHP, the intent of DHHL and NPS management is to preserve and perpetuate the legacy of the Hansen’s disease community while also sup-porting native Hawaiians. The NPS supports enrichment and advancement of native Hawaiians through three provisions in the Act that established Kalau-papa National Historical Park: 1) native Hawaiians have second right of refusal after patient residents for any income-generating visitor services; 2) qualified native Hawaiians receive hiring preferences for staff positions at Kalaupapa National Historical Park; and 3) the NPS shall provide training opportunities for native Hawaiians to develop skills for staff positions and for the provision of visitor services. These three mechanisms provide special opportunities for

native Hawaiians to be employed at Kalaupapa NHP for the purposes of park management, operations, and visitor services.

To further the DHHL and NPS goals at Kalaupapa, the NPS would recommend partnering with DHHL to create programs and activities for native Hawaiians related to the purpose of the park. Stewardship programs could include the continued rehabilitation of Hawaiian sites and preservation of historic struc-tures and landscapes associated with the Hansen’s disease community within the DHHL lands. Educational programs could include themes that focus on wellness and healing and Hawaiian traditions at Kalaupapa. Agreements for management of facilities and lands to support these programs would be neces-sary to clearly outline each agency’s roles and responsibilities. It is the intent of the NPS to cooperate, collaborate, and partner with DHHL so that Hawaiians and all people can learn about the important stories and traditions associated with Kalaupapa.

Department of Land and Natural Resources, Department of Transportation, and R. W. Meyer, Ltd. Partnerships and Churches
The NPS would work collaboratively with DLNR, DOT, and R. W. Meyer, Ltd. to update or enter into new agreements for long-term management of Kalau-papa NHP based upon the intent of the preferred alternative.

The agreement with DLNR would focus on shared management of cultural, natural and marine resources within the park administered by DLNR, including the Makanalua, Kalawao, and Waikolu ahupua‘a. The NPS may continue to act pursuant to the enabling legislation regarding land donation or exchange with DLNR during the life of the GMP.

The agreement with DOT would continue to focus on providing safe air transport to Kalaupapa and preserving the historic buildings and features on DOT land.

The National Park Service would enter into a lease or other agreement with R. W. Meyer, Ltd. to continue to allow access for staff and visitors on the pali trail through R.W. Meyer, Ltd. land and to pursue shared resource management goals in the long-term.

Cooperative agreements with the Roman Catholic Church in the State of Hawai‘i, the Hawai‘i Conference Foundation, and the Church of Jesus Christ of

Latter-day Saints would also continue as long as they are viable and would be renewed for manage-ment of churches and church properties within Kalaupapa NHP. It is expected that the religious institutions will seek a continued presence at Kalaupapa and/or interest in partnering with the NPS for the long-term care of the churches and related facilities.

Cultural Resources

In addition to the management strategies in the “Actions Common to All Alternatives” section, the NPS would preserve cultural resources through engagement with partners, visitors, and service groups for visitor learning and enjoyment. The NPS would focus cultural resource treatments on stabilization, preservation, and rehabilitation, to ensure the long-term preservation of significant historic structures and landscape characteristics, especially related to the period from 1866–1969. Historic structures could be adapted to accom-modate visitor use and support operations of the national historical park. Opportunities would be provided for visitors to participate in onsite living cultural activities. The NPS would expand an already active cemetery preservation program that may include conducting formal investigations to identify and quantify additional gravesites, marking cemeteries, and marking gravesites.

Values, Traditions, and Practices of Traditionally Associated People

The NPS would enhance the ethnography program with additional staff and collaboration with partners focused on patients, their ‘ohana, kōkua, and kama‘āina. Ethnographic work would focus on conducting formal and informal oral



Top: Paschoal Hall activity, 1950s. Photo courtesy of IDEA Archives. Middle: Paschoal Hall rehabilitation, 2011. NPS photo. Bottom: Paschoal Hall rehabilita-tion complete, 2012. NPS photo.

histories, documentation, and research of existing and past cultural traditions and peoples associated with Kalaupapa.

Archeological Resources

The NPS would increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeologi-cal district and/or a traditional cultural property designation. The NPS would manage and increase hands-on learning, research, stabilization, and other preservation treatments of archeological resources through stewardship activities.

The resources related to early native Hawaiian habitation and use within the historical park is vast, complex, and remarkably intact. Native Hawaiian features from the pre-settlement period would receive preservation treatments, including stabilization, rehabilitation, and restoration. The NPS would collaborate with partners to ensure the long-term protection of features that contribute to the archeological record and cultural landscape. The opportunities for rehabilitation and restora-tion projects are numerous and could include work on the heiau, agricultural rock walls, holua slide, invasive vegetation clearing, and reintroduc-tion of traditional plants.

Historic Structures

Historic structures refers to buildings and struc-tures that are contributing to the Kalaupapa Settlement National Historic Landmark, were constructed between 1866 and 1969, or are other-wise listed or are eligible for listing on the National

Register of Historic Places. The NPS would follow the Secretary of Interior’s Standards for Treatment of Historic Properties.

A phased strategy that considers historic preservation goals and management needs would guide the treatment of individual buildings. Kalaupapa’s NHL-contributing historic structures would be stabilized, preserved, and rehabilitated for current and future uses, including visitor facilities, partner uses, park operations, and as interpretive exhibits as funding allows. At a minimum, all NHL-contributing historic structures would be documented in historic structures reports and stabilized to prevent further loss of historic fabric. The NPS would maintain the integrity of the NHL and address high priority needs before turning to activities that are less essential.

The preferred alternative identifies appropriate uses and treatments for each historic building within the park. Specific functions for neighborhoods and individual buildings are identified in the Kalawao and Kalaupapa Settlement section on page 107. The NPS considered the existing use of each building, whether the existing use is compatible with the long-term future of the park, and whether a more appropriate and necessary use would be desirable. Some structures would be adaptively used. The conditions of the existing historic buildings at Kalaupapa vary widely, and require different treatments depending on their condition and intended future function. For each building, its existing condition, historical significance, and future function was assessed, and an appropriate treatment was identified.

All historic preservation treatments would be conditional on the availability of funding. In general, the NPS would prioritize stabilization of NHL-contributing historic structures before moving to more intensive rehabilitation projects. Based on previous experience, the NPS would use best practices in stabilizing historic buildings and improving their conditions for use while minimizing costs. Most historic preservation projects in the preferred alternative would be performed by non-NPS construction contractors. However, many small scale

stabilization and preservation projects could be done by Kalaupapa’s historic preservation program and are therefore not reflected in the cost tables. Several non-historic outbuildings (such as garages and storage sheds) with no anticipated future use will not receive any project funds.

Once buildings have been preserved or rehabilitated, they would receive cyclic maintenance.



Hale Mālama curatorial facility blessing ceremony, 2005. NPS photo.

Phased Approach:
Phase 1 includes stabilization and preservation of essential NHL-contributing historic structures managed by the NPS that are in poor and fair condition and have an immediate and necessary use. These buildings include staff housing residences and necessary outbuildings. Phase 1 also includes rehabilitation of historic maintenance structures (such as workshops and warehouses) for operation of the park’s historic preservation program. Several stabilization projects would be completed by NPS staff and would require minimal costs for completion.

Phase 2 addresses the park’s needs during and after the DOH’s departure from Kalaupapa and is expected to occur over many years. Historic buildings necessary for park operations, partner use, staff housing, community use, and visitor services would be preserved and rehabilitated depending on the condition of the structure. During Phase 2, the DOH will transfer management responsibilities of the remaining historic buildings to the NPS. At a

minimum, all NHL-contributing historic structures received from the DOH would be documented and stabilized until a future function is feasible. This set of structures includes buildings that are identified for possible future concessions and visitor lodging.

Phase 3 includes rehabilitation of identified historic buildings that could be used for visitor services and occurs after the DOH’s departure from Kalaupapa. The rehabilitation treatments in Phase 3 build on the stabilization work previously completed in Phase 1 and 2 for these structures. These buildings

would function as part of a concessions operation. The operation could be run by a nonprofit or for-profit entity. Implementation of Phase 3 would require securing non-federal partner contributions and could be incrementally phased in over time.

The NPS would strive to meet these goals while working in partnership with the park’s state, religious, and other for-profit and nonprofit partners. Several historic preservation projects would require securing funding from non-federal partners. In addition, a key component of alternative C is to involve stewardship groups in appropriate historic preservation projects through hands-on learning activities. Groups could assist in preservation work to help offset NPS costs.

Many of Kalaupapa’s historic structures are in vulnerable locations along the ocean shore within the 100-year floodplain. These structures are at-risk from tsunamis, hurricanes, sneaker waves, storm surges, flooding, and sea level rise. The NPS would document and seek to maintain the integrity of NHL contributing structures along the ocean shore and use them as described in Alternative C. In the event of a catastrophic loss of historic structures, the NPS would monitor the remaining structures and would make decisions on a case-by-case basis to determine the future management of impacted buildings. The historic buildings could be rehabilitated, treated to increase their resiliency to future events, or they could be abandoned, and their functions could be relocated. Replacement structures may be warranted under some scenarios.

The NPS recognizes the dynamic nature of planning for and managing Kalaupapa’s historic structures. The NPS will maintain an adaptive management philosophy, considering new opportunities and risks as they arise and reprioritizing historic preservation projects as appropriate.

Cultural Landscapes

The NPS would improve the overall condition of Kalaupapa’s documented cultural landscapes within the boundary of Kalaupapa NHP including the Kalaupapa and Kalawao settlements and the Molokai Light Station. In the preferred alternative, the NPS would focus on large-scale cultural landscape preservation and treatment projects through assistance from partners and stewardship groups. The NPS would actively support hands-on learning that works to preserve historic character and assure compatible rehabilitation of the cultural landscape.



Lava bench tidepool on Kalaupapa’s rugged northeast coast. NPS photo.

The cemeteries in Kalaupapa NHP serve as the final resting place for thousands of Hansen’s disease victims and the kōkua who assisted them. As such, they are important places in the history of Kalaupapa and for the thousands of descendants with ancestors who were exiled at Kalaupapa. As memorials, Kalaupapa’s cemeteries would be cared for with utmost respect. The NPS would continue active management and care of known cemeteries, including ongoing stabilization, and preservation treatments of known gravesites.

The NPS would develop a cultural landscape report that identifies long-term strategies to reduce fragmentation and incremental loss of cultural landscape features and prescribes preservation treatments for landscape characteristics and features. The NPS would increase support for documentation and research related to Kalaupapa’s cultural landscape features, including research on identifying cultural traditions

expressed in the landscape. Initially, the NPS would focus on stabilization of landscape features, so that resources are not lost. The NPS would then rehabilitate selected areas and landscape features that illustrate Kalaupapa’s many histories. These areas could include patient residential gardens. Selected areas could be adaptively used, as described in the Kalaupapa Settlement section, for public use and learning. The NPS would also maintain selected viewsheds to enhance understanding of the larger landscape, particularly from overlooks and viewpoints. The NPS would expand the nursery program to include fruit trees,

legacy trees, and additional rare and endangered plants and work to manage fruit and legacy trees in coordination with the natural resources management program.

A key component of the long-term preservation of Kalaupapa’s cultural landscapes is coordination and collaboration with a variety of partnership entities focused on the purpose of Kalaupapa NHP. The hands-on work and labor to stabilize, preserve and rehabilitate landscape features and characteristics within Kalaupapa NHP is an effort that the NPS cannot do alone, and partnership programs and projects would support both the long-term preservation and maintenance of Kalaupapa while also instilling in individuals the value of stewarding the Kalaupapa ‘āina. The possibilities for partnership programs and projects are numerous and could include an education institute, rock wall restoration, vegetation clearing, and maintenance of ethnobotanical gardens.

Museum Collections

Collections items would continue to be documented, preserved, and managed following the most current museum management plan. Acquisition of items and development of the collection would follow the most recent scope of collections for Kalaupapa NHP.

In order to better understand and manage the full range of items related to Kalaupapa, both within the NPS collection and within the collections of other entities, the NPS would collaborate with partners in managing, documenting, and conducting research related to the collections. The NPS would continue to consult with patients and ‘ohana to better understand objects in collections. The NPS could partner with repositories to house Kalaupapa museum



Residents fishing off the Kalaupapa peninsula. NPS photo.

collections as well as identify Kalaupapa-related collections housed in offsite repositories. The NPS and its partners would develop digital tools, finding aids, and media products that support research and offer creative ways for visitors to interact with the collections both onsite and offsite. Museum collection items could be displayed in exhibits within historic structures and at the visitor center as appropriate. Where ownership of collections is undetermined, the NPS would work with partners, including the State of Hawai‘i, to identify ownership and make long-term arrangements for the conservation of these items.

Natural Resources

In addition to the management strategies in the “Actions Common to All Alternatives,” alternative C would expand the research and monitoring programs to better understand ecosystem processes using both traditional and contemporary methods. The NPS would involve partners and stewardship groups in natural resource management activities.

Air Quality

The NPS would work with national, state, and local entities to better understand air quality at Kalaupapa and implement Molokai and NPS initiatives that improve air quality.

Soundscapes

The NPS would conduct baseline acoustic monitoring through the NPS Natural Sounds and Night Skies Division. The NPS would work to restore the natural soundscapes by reducing the number of feral animals and increasing

the number of native species in the park. The soundscape levels in developed areas would be quantified so that future uses and sound levels are compatible with the historic, cultural, and contemplative character of the park. This would include working to control modern human noises that may impact the soundscape, such as aircraft noise related to construction, machinery, and air tours.

Lightscaapes

The NPS would work to improve natural dark night sky conditions, protect the park from light pollution, and reduce electrical power usage by using sustainable design and technologies in the park. The NPS would conduct baseline night sky and lightscaapes monitoring in order to quantify the current conditions.

Water Resources

The NPS would continue monitoring and research of water resources to identify high water quality areas, such as the ocean, streams, the crater lake, and wetlands. These high water quality areas would be protected and preserved, and poor water quality areas would be improved where possible. The NPS would work with partners outside the park that utilize and manage water resources to improve water quality and flows. The NPS would also continue to maintain and operate the water treatment and distribution system for drinking water.

Marine Resources

The NPS would explore establishing a managed area within the marine portions of the park, in consultation with DLNR and community partners, to include areas with high fish biomass and/or other important marine resources. Monitoring and research would continue using both traditional and contemporary methods to track status and trends of fisheries and marine wildlife and conditions in the intertidal zone and coastal reefs. The NPS would work to restore select marine areas, which could include enlisting stewardship groups to help remove alien species.

Soils and Geologic Resources

The NPS would continue monitoring of geological resources and would manage geologic resources as a component of natural systems and viewsheds. The NPS would continue monitoring of soil erosion and landslides, would mitigate for soil erosion and landslides, and take preventative measures to stabilize sensitive and erodible areas, as feasible.

Vegetation

In addition to the management strategies in the “Actions Common to All Alternatives” for vegetation management, the NPS would continue and expand the vegetation monitoring program to track status and trends of plant species in the historical park. The nursery program would be expanded to include fruit trees, legacy trees, and additional rare and endangered plants. Management of culturally significant vegetation would be done in coordination with the cultural resources staff, including carrying out an integrated pest management plan. The NPS would also support traditional agricultural practices and encourage visitor and service group participation.

Wildlife

Management of wildlife would focus on reducing nonnative wildlife species within the park and improving native habitat for native birds and other native wildlife. This includes fencing and removing feral ungulates in management units of the park and increasing efforts to reduce nonnative small mammals (such as mongoose) from the Kalaupapa Settlement. The NPS would also establish a monitoring program to track wildlife status and trends.

Fishing, Hunting, and Gathering

NPS regulations would continue to apply to the marine area of the park and on land to the extent consistent with the NPS real property interests or pursuant to cooperative agreements.

In the near term as in the “Actions Common to All Alternatives,” the DOH regulations and patient resident rules concerning fishing, hunting, and gathering would continue until the DOH departs Kalaupapa. See Appendix G for the DOH’s rules and regulations governing all visitors to Kalaupapa Settlement.

In the long-term, the NPS would work cooperatively with the appropriate state agencies to continue to manage marine resources within the park. The NPS would work cooperatively with the State of Hawai‘i and community partners to manage marine resource use and also ensure the sustainability of the resources for future generations. The NPS would also look to cooperative models for fishing best practices, such as those at Mo‘omomi, Ā‘hihi Kīna‘u, and Kaho‘olawe.

In the long-term, the State of Hawai‘i would continue to manage recreational/subsistence hunting and the NPS would work cooperatively with the State of Hawai‘i and partners to establish new regulations for safety above and below the 500 foot elevation.

The NPS would also engage partners and service groups in preservation activities that support traditional cultural uses.

Scenic Resources

The NPS would provide visitors with opportunities for scenic views that encourage appreciation and enjoyment of Kalaupapa National Historical Park. The NPS would partner with stewardship groups to remove invasive nonnative vegetation that obscures or impacts significant views and features.

Interpretation and Education

The NPS would focus the content of interpretive and educational programs on the park’s updated interpretive themes that were developed as part of this GMP effort and through the public planning process. They are described in chapter 2.

The NPS would greatly expand the growing interpretation and education division over time, including hiring staff to support a range of interpretive opportunities, including onsite interpretation, educational programs, and outreach programs to reach people who may not be able to visit the park. Most programs would be focused onsite with an emphasis on hands-on stewardship and learning opportunities that contribute to the preservation of Kalaupapa’s resources. In addition, the NPS would involve patient residents, ‘ohana, and kama‘āina as cultural interpreters to tell the story of Kalaupapa. NPS staff, commercial guides, docents, and partners would be trained to convey accurate information about Kalaupapa’s history, patient community, and Hawaiian culture.

A key component of alternative C is the support for group visitation engaged in hands-on learning to assist the park in improving resource conditions. Through activity, experience, and service, these special park visitors would be engaged in the long-term care of Kalaupapa’s history and ‘āina. A focus on youth groups would help to share Kalaupapa’s unique history with future generations and promote a stewardship ethic of mālama ‘āina for the long-term care of Kalaupapa NHP.

Stewardship groups could be engaged in a wide variety of park projects. Resource projects could include supervised rehabilitation of historic buildings and cultural landscape features, nonnative plant removal, rare and endangered plant propagation and restoration, inventory and monitoring projects, and feral animal control and habitat restoration to benefit native wildlife. Cultural programs could include perpetuating native Hawaiian traditions and practices at Kalaupapa. Youth groups could be engaged in media and outreach programs, such as service learning activities and creating social media to increase awareness and interest in Kalaupapa.

In the long-term, the NPS and its partners would provide facility-based interpretive programs, interpretive media, digital experiences, onsite demonstrations, and opportunities for people to interact with NPS interpretive staff and partners at the park. Interpretive media and programs would be developed, such as publications, exhibits, a film, educational websites, and a walking tour. Digital experiences, such as computer and web-based programs, would provide contemporary strategies to reach and connect with broader and more diverse audiences both outside and within the park. Demonstrations by NPS staff, partners, and experts would provide visitors with a greater understanding of the Kalaupapa’s resources. Demonstrations could include archeological excavations, historic building rehabilitation, rare and endangered plant propagation and restoration, and marine and terrestrial inventory and monitoring. The interpretive staff would collaborate with the resources programs to align the direction of the programs and benefit from shared information and resources.

Paschoal Hall would function as the primary interpretive and orientation center and multipurpose space. It would be a hub for orienting visitors when they first arrive at the settlement. Paschoal Hall would house interpretive exhibits and could be used for film screenings, presentations, and other group functions. All visitors would be required to visit Paschoal Hall for an orientation and before travelling to other areas of the park.

Interpretive information, such as wayside panels, would be sited at key locations throughout the park. Signs and interpretive waysides would be improved to provide clear and accurate information to visitors. A park-wide wayfinding and site identification plan would guide the development of signage and wayside panels for visitor enjoyment and learning. Select patient homesites and buildings, historic and natural features, and scenic viewing areas would provide visitors with a varied and in-depth understanding about Kalaupapa’s cultural

and natural history. Museum collections items could be displayed as exhibits for interpreting Kalaupapa’s Hansen’s disease community and native Hawaiian history and traditions.

Outreach programs would be targeted to youth and communities on Molokai and throughout Hawai‘i. The NPS would develop curriculum-based educational programs and materials, such as lesson plans and traveling educational exhibits about Kalaupapa. This could be done in partnership with educational institutions in Hawai‘i and abroad.

An updated long-range interpretive plan would be developed to plan for the future of the park’s interpretive and educational goals. The plan would include identifying visitor experience goals, developing subthemes of the interpretive themes, and more detailed planning for specific sites within the park. It would provide recommendations about interpretive media, interpretive facilities, personal services, and direction for a wide range of interpretive and educational programs and partnerships.

Visitor Use and Experience

In the near term, same as the “Actions Common to All Alternatives,” visitor use would continue to be managed by DOH and NPS, and DOH rules and regulations for visitation would continue in order to provide a well-maintained community for the patient residents and to protect their privacy. In the long-term, it is anticipated that the NPS would manage visitor use and visitor facilities.

The term “visitors” is meant to encompass the wide variety of people who do not reside at Kalaupapa. Visitors could be general visitors who do not have a personal connection to the park. Visitors would include people who come to Kalaupapa to participate in specialized activities, such as school groups programs and stewardship activities. Visitors also include people who have personal connections to Kalaupapa, including family members and descendants of patients and kama‘āina. All people would be welcome to visit Kalaupapa.

In order to preserve Kalaupapa’s serenity, sacredness, and sense of isolation in the long-term, visitor rules and regulations would be designed to provide a variety of high quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship. Activities for visitors would be both

structured and unstructured in order to accommodate a range of visitor needs and desires that are compatible with the purpose of the park. Visitor experience would emphasize personal reflection, contemplation, culture, and history.

The NPS would partner with entities to provide visitors with opportunities to participate in hands-on stewardship activities that contribute to the preservation, rehabilitation, and restoration of resources. To make this long-term transition in visitor use, the NPS would need additional documentation and planning to implement the GMP guidance, such as a visitor use management plan. Additional planning could address all aspects of visitor use and regulations, including number of visitors, orientation and access, overnight use, and user capacity. Additional documentation could include the facility capacity of existing infrastructure, including water, sewer, waste disposal, recycling, transportation, and electrical systems, historic buildings, as well as updated pillow counts. The quantity and breadth of visitation affects multiple areas of park management, and more detailed planning will be necessary for structuring visitation at Kalaupapa in the future.

Number of Visitors

In the long-term, the number of visitors allowed per day would change. The number of visitors allowed would be determined and managed by: 1) the capacity of facilities to provide high quality visitor experiences, 2) limits on numbers of visitors through concessions contracts and commercial use authorizations, 3) an entry pass system, and 4) user capacity guidance contained in this GMP, see the “User Capacity” section. The NPS would manage visitation to ensure the preservation of Kalaupapa’s qualities that are most valued: the special spirit of the people and their stories, the sacred mana and spirituality, the cultural landscape and historic surroundings, the peace and quiet, and the feeling of isolation and solitude.

The capacity of historic building, facilities, and infrastructure at Kalaupapa is finite and would not substantially increase. When facilities and systems need replacement or improvements, the capacity would generally be maintained at current levels. The NPS would have the priority for occupying and using facilities in order to maintain park operations followed by park partners. The remainder of overnight accommodations could be used for overnight visitors and operated by a concessioner or nonprofit entity. The “Kalaupapa Settlement” describes the projected uses for areas and historic buildings and facilities.

The NPS would work with concessioners and commercial operators to set limits on the number of visitors who purchase commercial services as part of their visit to Kalaupapa NHP. These limits would be identified in concessions contracts and commercial use authorizations. Limits on users would be instituted to manage the number of people who enter the park by mule, who use concession-led activities (such as tours), and who overnight at the park. For example, the commercial use authorization for access by mule allows 20 visitors to enter the park on the mule train per day. This limit is necessary to maintain the trail and bridges in good condition, and this limit or a similar one would continue in the future. A commercial use authorization or concessions contract would designate the number of people allowed on tours per day. It would also designate the number of people allowed to overnight in the park through a concession operation. In the event that it would not be financially viable for a concession to operate visitor services, a nonprofit entity approved by the NPS could operate these services.

An entry pass system would be established to provide structured access to portions of Kalaupapa NHP which would provide greater opportunities for more people to learn about, see, and experience Kalaupapa. Foot access from the top of the pali would be allowed to the Kalaupapa Settlement for day use by Molokai residents and general visitors. This would allow Molokai residents and visitors the opportunity to regularly visit the park and would seek to strengthen the connection between topside Molokai and the Kalaupapa’s people and ‘āina.



Left: Volunteers from Kaneohe Congregational Church help with vegetation removal. Right: Papaloa Cemetery. NPS photos

Air access to Kalaupapa would also be allowed, and people not associated with a commercial tour or lodging could visit the park as a day-use visitor.

Days could also be designated by the park for unlimited use for special events. These special events could be associated with the churches, such as St. Damien’s Day, and days for families, such as “Ohana Days.” These events require substantial staff involvement and coordination and also put pressure on facility capacities and transportation within the park. For these reasons, there would be no more than four special event days allowed for unlimited visitor use per year. In the event that there is increased pressure to hold special event days, the park would consider adjusting limits based upon staff availability and user capacity standards.

Orientation and Entry Pass

Orientation information would be provided on the internet, at offsite locations, and at key entrance points within the park boundary. Visitor information on the internet and at offsite locations would prepare visitors for their trip to Kalaupapa. An orientation and interpretive exhibits could be at the Ho’olehua Airport. The NPS would consider establishing an NPS presence for visitor orientation in Kaunakakai and in partnership with other state agencies or entities. Orientation information would be located at a kiosk at Pālā’au State Park and topside trailhead and at the bottom of the pali trail upon entering the Kalaupapa Settlement. Information would also be provided at the Kalaupapa Airport for those arriving by plane.



Left: Volunteers from Kaneohe Congregational Church help with vegetation removal. Right: Papaloa Cemetery. NPS photos

All visitors wishing to enter the Kalaupapa Settlement and other areas of the park would be directed to Paschoal Hall or other facility to receive a required entry pass and orientation to the park. The orientation would include introducing visitors to the purpose and significance of Kalaupapa and conveying rules and regulations so that visitors are respectful and safe during their visit. Special provisions for repeat visitors could be established. Visitors using the free day-use option would need to ensure they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.

An entry pass system would be established for all visitors to Kalaupapa Settlement and other areas of the park. The purpose of an entry pass system would be to protect resources, to orient visitors, and to monitor and evaluate visitor use. The entry pass would describe the conditions for visitation and regulations for use at Kalaupapa; visitors could be cited if they violated the regulations. The entry pass system would be instituted gradually, monitored, and designed so that visitor use does not exceed the capacity of facilities or alter the character of Kalaupapa NHP.

Access within Kalaupapa

In the long-term, the NPS would manage visitor access within Kalaupapa in order to protect resources, provide high quality visitor experiences, and promote visitor safety within the park. Escorted and unescorted access within the park would be allowed after visitors are oriented to the park and receive an entry pass at Paschoal Hall.

The NPS received comments from people expressing a desire to experience areas of Kalaupapa on their own terms. These visitors wanted personal space to honor the patients and native Hawaiians who lived and died at Kalaupapa and opportunities for personal reflection and solitude.

The NPS would allow unescorted access to select areas within the park to provide self-guided opportunities for those seeking to learn about Kalaupapa on their own. Visitors would have unescorted access within the Engagement Zone from Pālā’au State Park to Kalaupapa Settlement and to Kalawao. Visitors would have free and unescorted access on the premises Pālā’au State Park within the boundary of Kalaupapa NHP and down the pali trail and to the limit of the Kalaupapa Settlement. After receiving an entry pass, visitors would be allowed unescorted access within Kalaupapa Settlement to the cattle guard by

the airport consistent with the boundary for sponsored visitors. After receiving an entry pass, visitors could walk or travel unescorted on Damien Road to Kalawao, including Saint Philomena Church and Judd Park. Allowing visitors to travel to Kalawao would provide access for family members to visit the memorial on their own. Unescorted access would be allowed to the rim of Kauhakō Crater, to provide visitors with an opportunity to hike to the high point on the peninsula, see the crater lake, and learn about the geology and cultural resources related to the crater. Increased ranger patrols along Damien Road and Kalawao would be necessary.

Visitors would need an NPS, partner, or commercial guide to access all other locations within the park below the 500 foot elevation. These areas encompass the Molokai Light Station, peninsula, and Waikolu Valley.

Areas above the 500 foot elevation in the Wao Akua Zone are steep and largely inaccessible. Visitors in these areas are generally hunters, and they would continue to need a valid hunting permit. Access to Kalaupapa through the Wao Akua Zone would be discouraged and could be prohibited to ensure safety and compliance with the entry pass system.

Age Limit

Children are currently not allowed to visit Kalaupapa in order to maintain the privacy and well-being of the patient community. In the near-term, the NPS will honor the wishes of the Kalaupapa Patients Advisory Council to direct the policy on visitation by children. Currently, children under age 16 would not be allowed as directed by the Kalaupapa Patients Advisory Council, and the council could decide to change the age limit if they desired.

When there is no longer a patient community at Kalaupapa, allowing youth to visit as part of group activities would expose children to Kalaupapa’s history and significance. The intent of the preferred alternative is to create future stewards of Kalaupapa, and instilling in youth a genuine understanding and experience of Kalaupapa is the first step to developing a conservation ethic and continuing cultural traditions at Kalaupapa. In the long-term, the age restriction would be lifted to allow visitation by children, though this policy would be periodically evaluated and could be changed. Children under the age 16 would be required to have an adult escort in the park. This requirement would

be established for children’s safety within the park and to ensure that children respect visitor rules and regulations.

Overnight Use

Limited overnight use would be offered for organized groups and park partners. Select historic buildings and facilities have been identified for overnight use and the areas are described in the “Kalaupapa Settlement” section.

Organized groups would be engaged in stewardship and learning activities, and park partners would include those with pre-existing associations and ancestral connections to Kalaupapa. These types of partnerships encompass family members of deceased patients seeking to tend to their ancestors’ graves, church members participating in religious services, and youth involved in stewardship programs. The NPS would manage overnight use, and the NPS could delegate management responsibilities to partners, including agencies, concessions, and nonprofit organizations.

Overnight use by the general public would be explored to serve those seeking a multiple day visit. Visitor accommodations would need to meet basic life safety codes and would provide a more in-depth experience of Kalaupapa. Several commenters for this GMP indicated that their overnight visits to Kalaupapa allowed them to have a greater understanding and appreciation of the significance of Kalaupapa. The rehabilitation of historic buildings for public overnight use would require securing nonfederal partner contributions. Camping would not be allowed in Kalaupapa NHP.

Recreational Activities

Visitor activities at Kalaupapa would be focused on learning and experiencing the history of Kalaupapa as a settlement for Hansen’s disease patients, as a home to ancient native Hawaiians, and a place rich in geological and ecological resources. Recreational activities that detract from Kalaupapa’s special character and are not compatible with the park’s purpose would be prohibited. Prohibited activities could include scuba diving, geocaching, and skateboarding. Appropriate recreational uses could be identified in the superintendent’s compendium.

Commercial Visitor Services

Same as “Actions Common to All Alternatives” plus:

The goal for commercial operations at Kalaupapa would be to provide for visitor’s basic needs and appropriate visitor services that enrich visitors’ experiences at Kalaupapa. The intent of visitor services would be to promote safe and suitable services that are compatible with the purpose of Kalaupapa NHP.

In the long-term, concessioners or nonprofit organizations would assist the NPS in providing a range of visitor services. After patients have exercised their first right of refusal, native Hawaiians would be given a second right of refusal for revenue-producing visitor services as stated in the General Lease No. 231 with DHHL. This would allow native Hawaiians special opportunities in being involved in Kalaupapa’s visitor services and financially benefitting from such opportunities.

Commercial services could include tours, mule rides, shuttle services, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging. In the event that these services are not profitable, a nonprofit entity could assist the park with providing visitor services.

The NPS would continue to support a cooperating association in offering educational materials to visitors.

Sustainable Practices and Responses to Climate Change

In addition to the management strategies in the “Actions Common to All Alternatives,” alternative C would increase documentation and monitoring efforts to understand the effects of climate change, including assessing the vulnerability of cultural and natural resources. The NPS would involve partners and stewardship groups in monitoring efforts.

The NPS would conduct scenario planning and explore adaptation strategies for resources with partners and subject matter experts. Resource adaptation options could include: benign neglect; increasing resilience and protection, physical relocation, pre-loss documentation, and interpretation of climate

change consequences. Potential climate change adaptation actions may affect decisions about visitor use and facilities management. Decisions would be made on a case-by-case basis depending on the significance, condition, and vulnerability of the resource(s).

The park would formally study the feasibility of consolidating energy generation in one or more locations, incorporating the data and recommendations from such sources as the 2010 National Renewable Energy Laboratory report. Through value analysis, the park would determine the most advantageous renewable source or sources, including solar, solar hot water, wind, geothermal, and others. Among sites to be considered would be topside Molokai, on certain building roofs, and other areas that can be screened from sensitive viewsheds. The park would also implement energy conservation practices, such as natural ventilation, strategic shading, and occupancy sensors, as well as structural retrofits and equipment testing and upgrading.

The park would also pursue third party power purchasing agreements with utility companies and other entities to maximize cost savings.

The park would implement water conservation policies and actions. This could include monitoring and restricting potable water usage for non-cooking and non-cleaning activities. The park would also study options for recycling gray water.

The fleet would be reduced to the minimum number of vehicles required for maintenance operations and visitor services. To the extent possible, vehicles that do not use fossil fuels would be procured.

Access and Transportation Facilities

Same as “Actions Common to All Alternatives” plus:

Land Access and Pali Trail

In addition, NPS would enhance the pali trail by clearing vistas, establishing rest stops, and defining places for mules to pass along the trail. The NPS would continue to assist the local community with the trail planning adjacent to the park on topside Molokai.

In the long-term, the pali trail would be open for access to Kalaupapa. The NPS would partner with others for trail maintenance, including the mule ride operator, Na Ala Hele of DLNR, and volunteer groups. See the “Visitor Use and Experience” section for more details.

Air Access and Kalaupapa Airport

In the long term, the Kalaupapa Airport would be open for public access to Kalaupapa. Visitors would be directed to Paschoal Hall where they would receive an orientation with visitors allowed to enter the settlement for orientation and to obtain an entry pass. See the “Visitor Use and Experience” section for more details.

Kalaupapa Roads and Trails

The NPS would develop a transportation plan for visitor and operational transportation. It would address universal accessibility, the removal of duplicative roads, and areas where access could be restricted for resource protection. The transportation plan would address historical integrity of the road network, preservation treatments, and could be done collaboratively with a cultural landscape report.

The character of roads throughout the Kalaupapa Settlement would be maintained, including road width, shoulder treatments, materials, and alignments to assure compatibility with the historic character. Deteriorated unpaved roads could be improved and stabilized with techniques that maintain the unpaved character but improve driving conditions, such as soil hardening or surfacing aggregate instead of asphalt or gravel.

The NPS would replace and/or establish directional signs necessary for safety and orientation.

Operations

Operational Facilities

Same as “Actions Common to All Alternatives”

Safety and Security

Same as “Actions Common to All Alternatives” plus:

In the long-term, the NPS would increase ranger patrols along Damien Road and to Kalawao. Ranger patrols on the pali trail would shift in focus from citing visitors who do not have a “sponsor” and who are under age 16, to a focus on visitor protection, providing information, and visitor safety.

Staffing

Same as “Actions Common to All Alternatives” plus:

Alternative C would be implemented with the current staffing level (40 base funded) plus 17 full-time equivalent staff (FTEs). The NPS also maintains approximately 12 temporary positions funded by projects.

New positions would be necessary for the expected substantial increase in NPS’s operations to manage the historical park once the DOH departs. NPS staff would replace specific DOH functions for work on historic structures, site operations, and management of visitor use. New staff would be required to support the treatment, operations, and cyclic maintenance for the historic buildings and structures. An interpretation and education division would be created to orient visitors to the park and share Kalaupapa’s history with a much broader audience at Kalaupapa and at select offsite locations. A volunteer program would be developed to manage group activities and those engaged in stewardship, educational, spiritual, and native Hawaiian cultural programs. Additional administrative staff would coordinate concessions, volunteer activities, and provide support for budgeting and human resources. Additional resource staff would provide necessary support to the archeology, anthropology, and vegetation management programs.

New positions would include a budget analyst, human resources specialist, administrative technician, volunteer/concessions coordinator, archeological/ anthropological technician, horticulturalist, chief of interpretation, interpretive ranger, education specialist, two visitor use assistants, carpenter, painter, utility systems repair operator, high voltage electrician, plumber, maintenance worker, and custodian.

In the long-term, the NPS would evaluate facility capacities, update the housing plan, and consider allowing family members of NPS staff, concessions, and partners if there is available housing space and infrastructure to accommodate them at Kalaupapa. Based on this analysis and planning, the NPS would

develop rules related to staff, concessions, and partner family members residing at Kalaupapa. The NPS would not build additional housing or substantially increase the capacity of infrastructure to support family members in the park.

Table 3.8 Alternative C Staffing by Division

Alternative C Staffing by Division	Base Funded
Management and Administration	3+4 new
Cultural Resources	5+1 new
Natural Resources	6+1 new
Facilities and Maintenance	19+7 new
Visitor Protection	6
Interpretation and Education	1+4 new
Total Staff	57

Cost Estimates

Annual Operating Costs

This alternative would be implemented with an additional 17 FTE as described above. These positions would add approximately \$1,060,000 to the operating base for alternative C. Additional operations and maintenance costs related to capital investments would be \$885,000. The total annual operating costs for alternative C would be approximately \$6,175,000 per year.

Table 3.9 Alternative C Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	17 FTE (Total 57 FTE)
Additional Staffing Costs	\$1,060,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$885,000
Total Annual Operational Costs	\$6,175,000

One-time Capital Costs

The costs to implement alternative C focus on ensuring the long-term preservation of Kalaupapa’s resources, promoting stewardship of the ‘āina, and connecting people with the history of Kalaupapa NHP.

The majority of costs are for historic preservation treatments to Kalaupapa’s historic buildings and structures. Historic preservation treatments include stabilization, preservation and rehabilitation. Historic structures and facilities costs also include improvements to facilities and infrastructure to eliminate health and safety hazards and to address structural deficiencies and deferred maintenance. The costs also include resource management programs, visitor use, and interpretive and educational programs. Costs reflect all proposals of alternative C that could be implemented over time.

Projects are identified under three different phases and align with the historic preservation strategy for historic buildings and structures described in the Cultural Resources section. Under alternative C, the following project types would be included in each phase:

Phase 1 projects are considered essential, total \$16,085,000, and include:

- stabilization of NPS managed NHL-contributing structures, features, and archeological sites
- natural resource management projects
- basic visitor services and long-range interpretive planning
- life, health, and safety-related projects
- phase 1 improvements to failing electrical system
- rehabilitation of the Kalaupapa trail
- rehabilitation of essential historic buildings for maintenance and park operations
- preservation of historic residences used for staff housing

Phase 2 projects total \$16,020,000 and include:

- stabilization of NHL contributing-structures transferred from the DOH to the NPS, including buildings identified for future concession operation and visitor lodging
- natural resource monitoring projects

- preservation and rehabilitation of historic buildings for visitor services, community use, maintenance, park offices, and staff housing
- interpretive exhibits and media
- phase 2 improvements to electrical system
- repaving the road system
- federal share of rehabilitation to historic church buildings and residences for partner use

Phase 3 projects total \$1,680,000 and would occur in the long-term when there is no longer a patient community at Kalaupapa. Implementation of these projects would require securing non-federal partner contributions. Phase 3 projects include:

- NPS share of rehabilitation costs for roughly 10 historic buildings for basic visitor services operated by a concession or nonprofit organization.

NPS costs for Phase 1, 2, and 3 would total: \$33,785,000. Partner contributions for shared projects would total \$6,085,000, including \$4,400,000 for Phase 1 and 2 for projects relate to religious institution work on historic church buildings and other buildings for other partner uses, and \$1,685,000 for Phase 3 concession operated basic services. The gross cost estimate, including partner contributions, would total \$ \$39,870,000. (Note: all costs are in 2012 dollars).



Kalaupapa residence in the McVeigh neighborhood. NPS photo.

Table 3.10 Alternative C (Preferred Alternative) One-time Costs (in dollars)

Project Description	Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)	
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)										
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites. Conduct ethnographic research and develop an historic structures report(s).	1,120,000	1,290,000	760,000						250,000	
Natural Resources: Fence areas to reduce feral ungulates and reduce vegetation to protect the settlement									190,000	
Interpretation, Education, and Visitor Information: Update long-range interpretive plan, develop interpretive exhibits and displays, and develop virtual and off-site educational programs						180,000			105,000	
Safety / Hazardous Waste: Inspect fire suppression system, conduct hazardous materials assessment, conduct projects identified in fire management plan									1,230,000	
Infrastructure: Rehabilitate electric system, maintain pump house and fuel storage					10,000	2,240,000				
Access: Continue to rehabilitate the pali trail			740,000							
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	60,000	340,000	3,380,000		90,000					
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing and partner use	10,000	670,000	1,330,000							
Visitor Services and Communit Use: Rehabilitate Paschoal Hall and the Lion’s Club Pavilion for community and visitor use			200,000	1,890,000						
TOTAL PHASE 1	16,085,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	0	1,775,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)										
Cultural Resources / Historic Preservation: Museum catalog backlog, museum upgrades, preserve historic structures	445,000		190,000						150,000	

Project Description		Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)
Natural Resources: Monitor air quality and soundscapes, upgrade nursery, and explore marine managed area designation										140,000
Interpretation: Produce park film and interpretive exhibits for historic structures										850,000
Infrastructure: Re-pave roads, rehabilitate electrical system, produce visitor transportation plan							3,220,000			100,000
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations		70,000	60,000	1,440,000		115,000	890,000			
Partner Use: Stabilize, preserve, and rehabilitate selected buildings and residences for partner use (NPS share)		15,000	300,000	1,260,000		10,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing		5,000	1,760,000	3,830,000						
Visitor Services and Community Use: Rehabilitate Craft and Storage Building, McVeigh Hall, and restrooms for community and visitor use. Construct waysides and kiosk at the Kalaupapa Overlook.				860,000	250,000			20,000		40,000
TOTAL PHASE 2	16,020,000	535,000	2,120,000	7,580,000	250,000	125,000	4,110,000	20,000	0	1,280,000
PHASE 3 (Facility rehabilitation for concession operations and public use—Long-term)										
Concession Operations (Commercial or Non-profit): Preserve and rehabilitate various historic buildings for basic visitor services (NPS share)			180,000	1,500,000						
TOTAL PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0	0
ALTERNATIVE C TOTALS										
PHASE 1	16,085,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	0	1,775,000
PHASE 2	16,020,000	535,000	2,120,000	7,580,000	250,000	125,000	4,110,000	20,000	0	1,280,000
PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0	0
PHASES 1, 2, AND 3	33,785,000	1,725,000	4,600,000	15,490,000	2,140,000	225,000	6,530,000	20,000	0	3,055,000
<i>Additional Partner Contributions</i>	<i>\$6,085,000</i>	<i>25,000</i>	<i>1,070,000</i>	<i>3,570,000</i>	<i>190,000</i>	<i>50,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,180,000</i>
<i>Total with Partnership Funding</i>	<i>\$39,870,000</i>	<i>1,750,000</i>	<i>5,670,000</i>	<i>19,060,000</i>	<i>2,330,000</i>	<i>275,000</i>	<i>6,530,000</i>	<i>20,000</i>	<i>0</i>	<i>4,235,000</i>

The National Park Service will also evaluate proposed facility investments prior to project approvals using the best scientific information available related to climate change and other possible scenarios to ensure the long-term sustainability of these investments. Due to potential vulnerabilities of some of the park’s facilities, it is feasible that the National Park Service may conclude that such financial investments for facilities would be unwise and that other options would be considered or potentially the project would not be pursued or implemented.

Cost estimates for alternative C are identified below in Table 3.10 and follow the guidance outlined in the “One-time Capital Cost” section under “Actions Common to All Alternatives.”

Action Plans, Studies, and Agreements

A number of specific action plans, studies, and agreements would be developed to implement alternative C. Some of these items would require additional special project funding or increases to the operating base funding. Plans for actions with potential to affect the environment would require formal analysis of alternatives in compliance with the National Environmental Policy Act, National Historic Preservation Act, and related laws. Such documents would reference and be tiered to alternative C. The following plans and studies would be required to implement alternative C:

- Administrative history
- Archaeological survey and documentation, including NRHP nomination, if applicable
- Cooperative management agreement with Department of Hawaiian Home Lands
- Cultural landscape report
- Historic resources study
- Historic structures report(s)
- Long-range interpretive plan
- Renewable energy feasibility study
- Scenario and adaptation planning related to climate change
- Soundscape management plan
- Transition management plan
- Transportation plan
- Visitor use management plan

Boundaries and Land Protection

Lands within the Kalaupapa National Historical Park Boundary

Lands and waters within the authorized boundary of Kalaupapa NHP are predominantly owned by the State of Hawai‘i DLNR, DHHL, and DOT. A private entity, R. W. Meyer, Ltd also owns lands at the top of the pali within the park boundary. Together, these lands, waters, and improvements are managed by the National Park Service through cooperative management agreements, a lease, and a memorandum of understanding. Public Law 95-565 authorizes the Department of Interior to acquire these lands with the consent of the owner. Should the state or private landowner express an interest, the NPS would be open to exploring acquisition options via one of the legislatively authorized means. For state lands, the enabling legislation authorizes acquisition through donation or exchange. For privately owned lands within the boundary of the park, legislation authorizes acquisition through donation, exchange or purchase from a willing seller. The NPS would continue to follow the park’s current land protection plan.

Lands Adjacent and Close to Kalaupapa National Historical Park

General management plans must address “indications of potential modifications to the external boundaries of the unit” to comply with the 1978 National Parks and Recreation Act. For Kalaupapa NHP, the Hawai‘i Area Studies conducted by the NPS in 2000 were reviewed for this planning effort. These studies analyzed the conditions of adjacent and nearby lands to determine opportunities for their long-term protection and the suitability and feasibility of adding these lands to the national park system. Based on the completeness and comprehensiveness of the Hawai‘i Area Studies, it has been determined that the analysis provided by the studies meets the requirements of the 1978 National Parks and Recreation Act to assess potential boundary modifications.

The Hawai‘i Area Studies completed in 2000 that fulfilled the legislative direction of Public Law 105-355, Sec. 511 contained two studies for lands on Molokai: 1) the “Kalaupapa Settlement Boundary Study Along the North Shore to Hālawā Valley, Molokai,” and 2) the “Study of Alternatives—Hālawā Valley, Molokai.” The NPS reviewed the studies and determined the studies’ findings continue to be valid today. The study areas are suitable additions to the national

park system because they possess nationally significant resources. The study areas are feasible additions to the national park system because they are feasible to administer, considering size, configuration, ownership, costs, and other factors. Designating these areas as part of the national park system and management by the NPS would provide the most effective long-term protection of the areas and would provide the greatest opportunities for public use. The recommended areas would complement and enhance Kalaupapa NHP’s legislated purpose “to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features” (Public Law 95-565, Sec. 102).

The NPS determined that two areas within the Hawai‘i Area Studies boundary merit additional consideration for inclusion within the national park system since the Hawai‘i Area Studies were completed in 2000. Two major landowners, The Nature Conservancy and the Pu‘u O Hoku Ranch have expressed their support for a boundary modification to include their lands and willingness to transfer their lands to the NPS.

Alternative C, the NPS preferred alternative, recommends external boundary modifications to support the long-term protection of nationally significant resources within the North Shore Cliffs National Natural Landmark and upper Hālawā Valley. The proposed boundary additions for alternative C include Pelekunu Preserve and a portion of Pu‘u O Hoku Ranch. These areas may be managed as a “Preserve” whereby hunting, fishing, and gathering would be allowed in accordance with State of Hawai‘i rules and regulations. Two options for national park designation could be considered: 1) North Shore Cliffs National Preserve and 2) Kalaupapa National Historical Park and Preserve. In either option, it is assumed that Kalaupapa NHP staff would manage the proposed new unit. These actions would require Congressional legislation to designate the new lands as a national preserve. Alternatively, legislation could state that parcels are only added to the preserve upon federal acquisition.

Landownership within the proposed boundary area could be both public and private. Private landowners within the newly designated areas could retain their property and would have the option of selling either a full or partial interest (e.g. easement) in their property to the National Park Service. Owners of private lands adjacent to Kalaupapa and within the proposed additional lands may have concerns about possible park expansion. It is important to understand that if, in the future, Congress were to pass an act to authorize a boundary adjustment; the NPS would only acquire private lands from willing landowners. The NPS would recommend that acquisition by condemnation or eminent domain would not be authorized. All ownership and access rights would be

respected and remain in place. No private property rights would be diminished as a result of Congress authorizing a boundary adjustment. Maui County would retain local land use jurisdiction for all lands that remain in private ownership within the newly established national preserve.

The national preserve would be managed in collaboration with native Hawaiian entities that support best practices related to management of Hawai‘i’s natural and cultural resources, including adaptive management, non-regulatory codes of conduct, community involvement, and education. The NPS would continue its role in the East Molokai Watershed Partnership to protect the best remaining native forest watershed areas on the East Molokai Mountains.

The intent of this proposed boundary modification is to preserve, in perpetuity, the majestic geology, outstanding scenery, native terrestrial flora and fauna, and native Hawaiian archeological resources and cultural values of the North Shore Cliffs areas while allowing appropriate and sustainable uses.

Pelekunu Preserve

Pelekunu Preserve consists of 5,259 acres managed by The Nature Conservancy. The Conservancy purchased the property in 1986 from the Moloka‘i Ranch to create the preserve. The lands encompassed by the preserve consist of 19 parcels. While the Nature Conservancy owns the significant majority interest in these parcels, there are other parties, including Queen Emma Foundation



View from the Kalaupapa peninsula looking east along the North Shore cliffs towards Pelekunu Preserve. NPS photo.

Figure 3.5 North Shore Existing Conditions

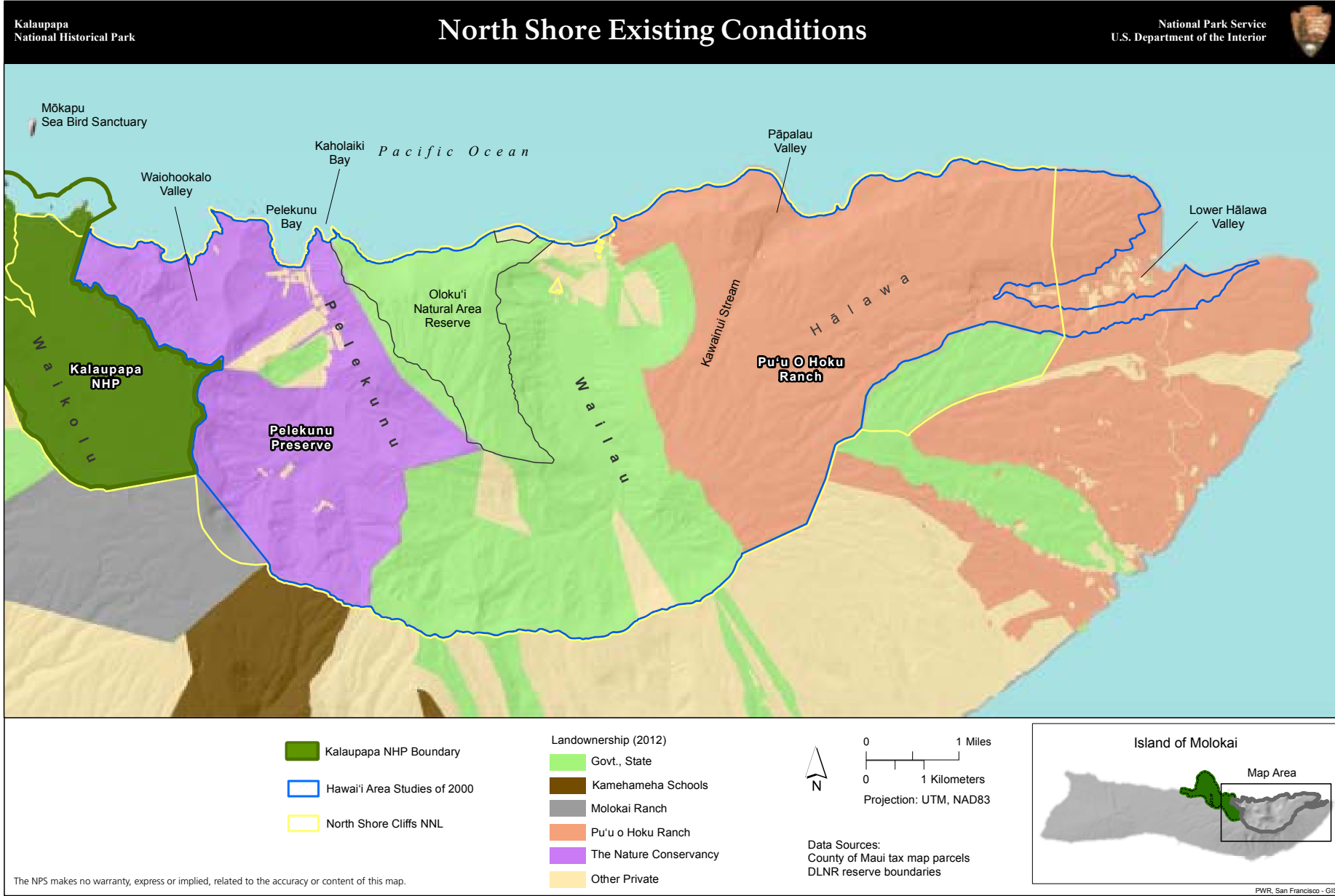
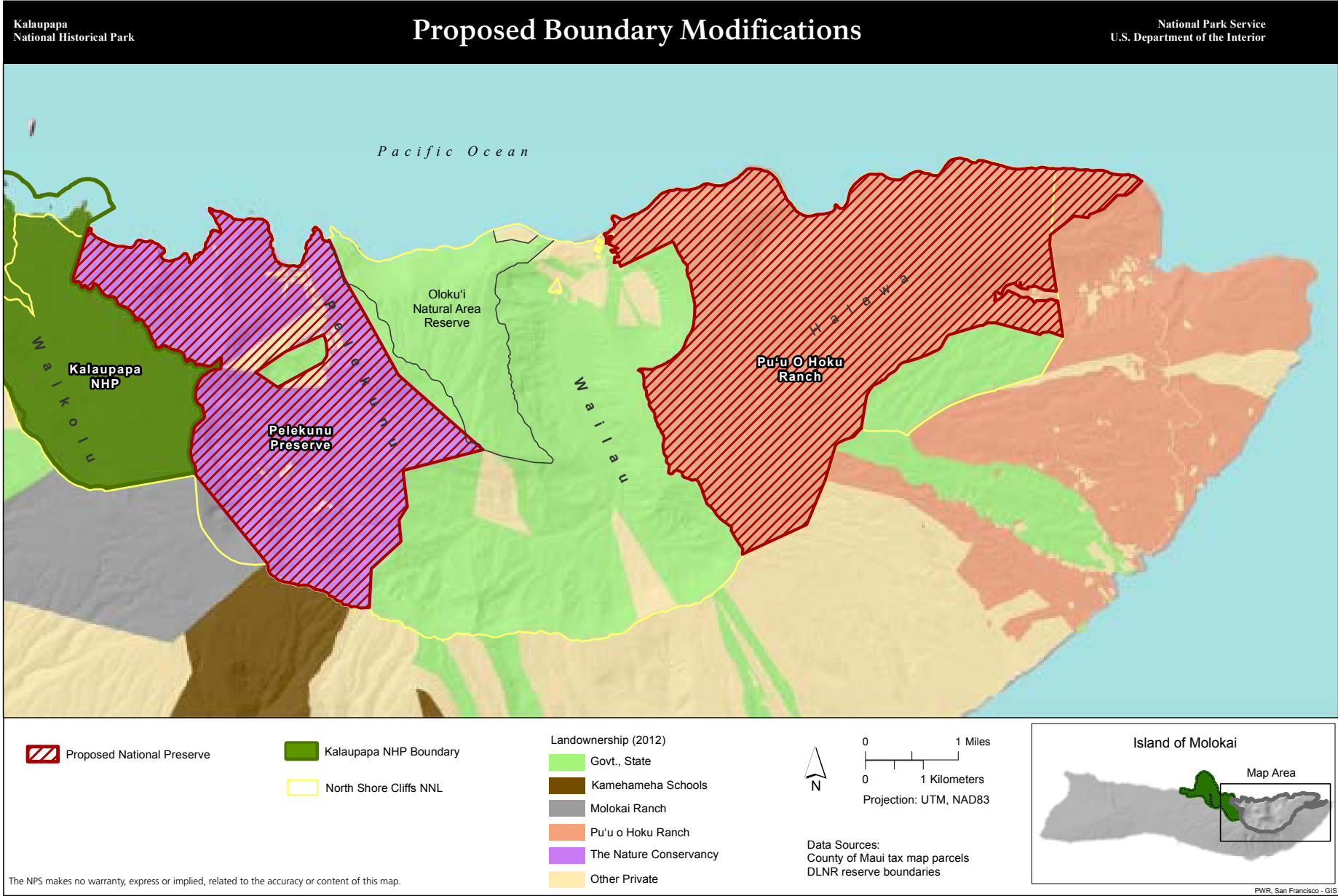


Figure 3.6 Proposed Boundary Modifications



and the Francis H. I. Brown Trust, that own varying undivided minority interests in them as well.

Pelekunu Preserve encompasses Pelekunu watershed including Pelekunu Stream, its tributaries, a protected lowland rainforest, and verdant sea cliffs. At the coast, the preserve extends westward beyond Pelekunu Valley to include the smaller Waiohookalo Valley and its stream system. To the east the preserve terminates in the spectacular horseshoe shaped Kaholaiki Bay. Pelekunu Stream contains nearly all of Hawai‘i’s native aquatic fauna, including the rare hihiwai, a native freshwater snail, and five fish species collectively referred to as ‘o‘opu. The Pelekunu Stream is one of the last and longest free-flowing streams in the State of Hawai‘i in near pristine condition; it is a prime example of an increasingly rare aquatic natural community and contains a full complement of native aquatic fauna. Because of its isolation, Pelekunu Valley has largely escaped modification from contemporary activities such as ranching, reforestation, agriculture, and tourism, all of which have transformed other parts of Molokai.

Pelekunu contains a rich array of archeological features that illustrate how native Hawaiians lived and farmed in the Ko‘olau District of Molokai. The valley bottom and upland tributaries were heavily terraced with stone walls for kalo production. Together with the presence of heiau and house sites, the archeological remains tell of a once thriving community in Pelekunu Valley.

The Nature Conservancy has expressed support for a NPS boundary modification to include Pelekunu Preserve and a willingness to sell TNC’s interest in Pelekunu Preserve to the NPS. TNC would use the funds from the sale of Pelekunu Preserve to establish an endowment for Molokai biodiversity conservation. TNC and the other owners could maintain ownership of shared parcels.

In addition to The Nature Conservancy lands in the Pelekunu watershed, approximately 40 small parcels are privately owned near the outlet of Pelekunu Stream, totaling about 310 acres. Private property rights would continue as they are today, unless property owners are interested in selling their property to the National Park Service. The State of Hawai‘i also owns approximately 125 acres which could be managed through a cooperative management agreement.

Pu‘u O Hoku Ranch
Pu‘u O Hoku Ranch is one of the largest private landholdings in the eastern portion of Molokai, of which 8,434 acres are in areas that have been previously

studied by the NPS as part of the Hawai‘i Area Studies. The Ranch contains five miles of rugged coastline, dramatic sea cliffs, forested mountains, the Pāpalaua Valley and Kawainui Stream, and the upland portions of the Hālawā Valley watershed. Approximately 7,120 acres of the Pu‘u O Hoku Ranch are located within the North Shore Cliffs National Natural Landmark designation. For the portion of the Ranch included in the “Kalaupapa Settlement Boundary Study Along the North Shore to Hālawā Valley, Molokai,” the studies’ findings indicated that the Pu‘u O Hoku Ranch is nationally significant for its geological and terrestrial ecological resources and for its archeological resources associated with native Hawaiian habitation and use. The study determined that the ranch is a feasible addition to the national park system and the “superior” alternative for the long-term preservation along the North Shore. The Pu‘u O Hoku Ranch ownership has expressed interest in the long-term preservation of 7,341 of the ranch through inclusion in the national park system. The designation of these lands as part of a national preserve would realize this vision. Transfer of these lands could occur via donation or sale. If by sale, the landowner has indicated an interest in establishing an endowment for Molokai biodiversity conservation with funds from the sale of the property.

Pu‘u O Hoku Ranch’s 1,093 acres that encompass the northeastern area of the Hālawā watershed and lower Hālawā Valley are not included in the proposed national preserve. Other conservation strategies are being considered by the Pu‘u O Hoku Ranch to support the long-term preservation of the cultural, natural and scenic values of the lower Hālawā Valley.

Other Areas Considered for Boundary Adjustment

Other areas surrounding the park were considered for analysis as part of this GMP, they include: 1) Pālā‘au State Park lands not currently within the boundary, 2) Kahanui watershed, 3) Pālā‘au trailhead easement to highway 460, 4) Mōkapu Island, and 5) Wailau. Further analysis of these lands was determined to be unnecessary. These lands were not included in this proposed boundary modification because of one or more of the following rationales: 1) current management by the State of Hawai‘i is adequate, 2) there is limited potential for safe visitation and management, 4) there are contingencies regarding community consent for federal management, 5) current landowners are not willing to sell or lease lands to the National Park Service.

Alternative D

Alternative D focuses on the personal connections to Kalaupapa through visitation by the general public. It is the most open to general visitation and aims to protect Kalaupapa’s diverse resources and integrity. Visitors would be provided with the most individual freedom to learn about Kalaupapa’s people and history through a direct experience. Visitors would be encouraged to explore and immerse themselves in the historic setting. However, as in alternatives A, B, and C, all current DOH rules and regulations would apply as long as there is a patient community at Kalaupapa.

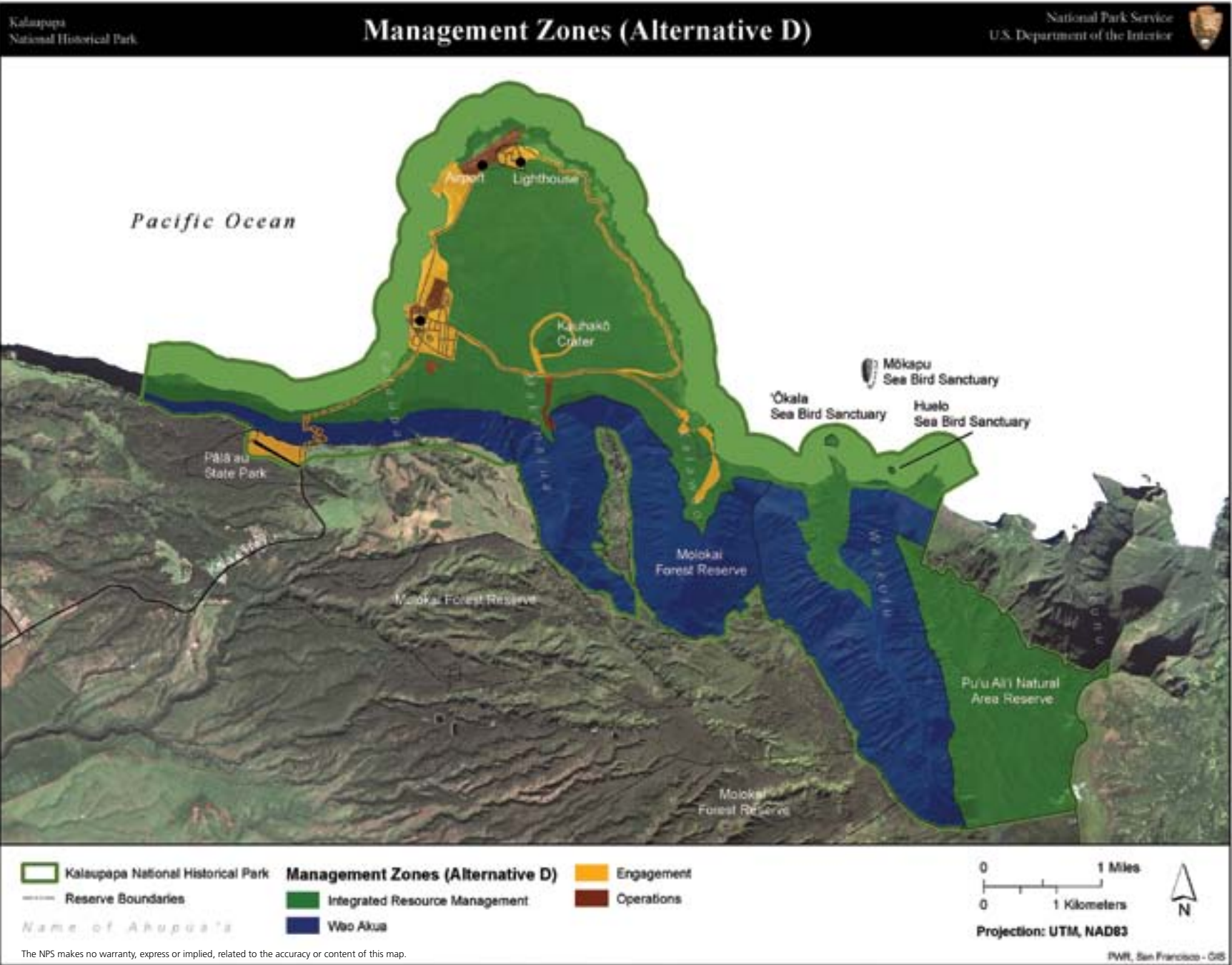
Under alternative D, Kalaupapa’s many resources would be managed to protect, maintain, and in some cases, enhance their integrity. These resources include Kalaupapa’s cultural landscape, historic structures, and many natural resources. Most of Kalaupapa’s historic buildings and facilities would be for visitor use and park operations. The NPS would recommend the designation of highly significant resources to ensure their long-term preservation while also bringing more recognition of their regional, national, and international significance to the general public. New designations and changes to existing designations could include expanding the current National Natural Landmark status, local marine managed area, National Register of Historic Places designation for an archeological district, and/or traditional cultural property, Wild and Scenic River designation for Waikolu Stream, and World Heritage designation.

In the long-term, visitor use rules and regulations would allow for a range of visitor opportunities to learn about and experience Kalaupapa. The cap of one hundred visitors per day would be lifted. Agreements with partners would need to be renegotiated and renewed to reflect the intent and actions of this alternative. The visitors would be provided structured and unstructured activities and allowed to explore areas of Kalaupapa on their own. Organized tours for the general public would be provided. The age restriction would be lifted; however, this would be reevaluated periodically. Demonstrations on resource protection and preservation activities for visitors could be a component of interpretation.

Under alternative D, the interpretation and education division would be established and would involve residents, ‘ohana, and kama‘āina as cultural interpreters to tell the story of Kalaupapa. Overnight use for the general public would be



Dramatic lighting accentuates the ocean view from the pali trail rising nearly 1,700 feet up the cliffs. Photo by T. Scott Williams, NPS.



explored. A concession or a nonprofit organization would provide for visitor services, such as lodging, meal service, tours, and merchandise sales. This alternative has the highest visitation levels among the three action alternatives.

Management Zones

The management zones for alternative D are applied to the landscape to identify an area’s predominant use and desired future conditions. Specific boundaries of the management zones are provided in Figure 3.7. The following description identifies the locations and details for the application of management zones in alternative D.

Integrated Resource Management Zone

The integrated resource management zone would be the same as alternative B and C, excluding additional areas zoned for engagement.

Wao Akua (Place of the Spirits) Zone

Same as alternative B

Operations Zone

Same as alternative C

Engagement Zone

The engagement zone would be largest in alternative D as compared to the other alternatives. The engagement zone would include all areas as described in alternative C, plus the rim of the Kauhakō Crater, road corridors on the east side of the peninsula from the Molokai Light Station to Kalawao, Wai‘ale‘ia Valley south of Kalawao, and the coastal and beach area from Kalaupapa Settlement to the airport. The Iliopii and Papaloa areas would be closed to visitor access during monk seal pupping seasons.

Unescorted access would be allowed in all areas of the engagement zone. In order to access areas to the east of Kalaupapa Settlement within the engagement zone, visitors would need to receive an orientation and entry pass.

Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP. The actions and strategies in this section are in addition to those outlined in the “Actions Common to All Alternatives” section.

Kalawao

Same as alternative C

Kalaupapa Settlement

In the near term, Kalaupapa Settlement would function much as it does today and as described in the “Actions Common to All Alternatives” section.

In the long-term, Kalaupapa Settlement would be managed similar to alternative C, although some uses of historic buildings would be different which are described below.

Buildings, structures, and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve



Labor Day picnic, Judd Park, Kalawao, 1952. Kalaupapa Historical Society Photo Collection.

their congregations and visitors with religious affiliations to the churches. These include St. Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, Bishop Home, and the Church of Jesus Christ of Latter-day Saints.

Existing and future park partners could use and co-manage historic and non-historic buildings, including the DOH Care Facility and the beach houses. It would be a goal for park partners to share in funding historic preservation work and cyclic maintenance necessary for these historic structures and areas. Park partners are envisioned to be agency partners, institutions, nonprofit organizations, volunteer work groups, school groups, and religious entities whose missions align with the purpose of Kalaupapa NHP.

Communal areas that would provide for group activities for park staff, partners, and/or visitors would be located in compatible historic facilities. These include, but are not limited to McVeigh Social Hall, Mother Marianne Library, Paschoal Hall, and the Lion’s Club structure.

Several buildings and clusters would be used to interpret the lives of patients and kōkua at Kalaupapa in the form of exterior exhibits and some interior exhibits. The main residential area, a portion of Bay View, and a portion of McVeigh would be stabilized as exterior exhibits and then rehabilitated once a use is identified. Stabilizing these historic buildings would ensure their protection, though unoccupied and unused buildings would be at a greater risk of neglect and deterioration over time. The residential homesites of patients could serve as interpretive exhibits, such as Kenso Seki’s homesite and Ed Kato’s studio.

Areas for visitor use would include: 1) buildings for visitor orientation, and 2) buildings and clusters for concession or nonprofit operated visitor services. Mother Marianne Library would function as the primary visitor orientation and resource center. Upon entering the settlement at the base of the pali trail, the slaughterhouse and bleacher area would serve as a staging area for incoming and outgoing tour groups and visitors. A concession or a nonprofit organization would operate Fuesaina’s Bar, the cafeteria, and the Kalaupapa Store for food and beverage services, general groceries, books, and merchandise sales. In the long term, overnight lodging options for visiting groups and individuals would be explored, with the goal of building collaborative partnerships for the rehabilitation of the Visitors’ Quarters, a portion of Bay View, and a portion

of McVeigh for overnight use. These buildings would continue to be stabilized until funds are identified for their rehabilitation.

NPS staff housing and temporary staff housing would be located in the residences along Kamehameha Street, the south side of Damien Road, and portions of Staff Row and the central residential area. Housing in these areas and possibly other locations would support approximately 72 full-time employees and additional temporary or visiting staff. Park operations would include headquarters, offices, maintenance, and storage areas. Park offices would be located in the DOH administration building, the NPS headquarters, police headquarters, the old stone church, and Hale Mālama. Maintenance and warehouse facilities would be located along the Damien Road waterfront, motor pool area, recycling center, and pier area.

Peninsula and Kauhakō Crater

The peninsula and Kauhakō Crater would continue to be managed for their cultural, terrestrial, geologic, and marine resource values. The NPS would focus on research, monitoring, and management activities that promote long-term stewardship of the ‘āina. For alternative D, access to the loop trail around the peninsula would be permitted by the general public. There could be the establishment of new trails including one to Kalawao using the Old Damien Road. In addition, there could be minimal directional signs along the peninsula trail. Public access to the Kauhakō Crater would be allowed and a loop trail around the crater could be included as an option under alternative D. Directional signs to the crater could also be provided.

Pālā‘au State Park

Alternative D has its strongest interpretive and educational features within the park boundaries. The development of an interpretive kiosk and exhibits at Pālā‘au State Park would be offered. The Kalaupapa Overlook could be enhanced to provide additional interpretive information, exhibits, and facilities. Ho‘olehua airport could include media exhibits that would not require NPS staffing. Visitors would continue to have free and unescorted access on the premises of Pālā‘au State Park within the boundary of Kalaupapa NHP.

Management Structure, Partnerships, and Agreements

Same as alternatives C and D

Cultural Resources

In addition to the management strategies in the “Actions Common to All Alternatives” section, the NPS would emphasize cultural resource preservation, rehabilitation, and selective restoration of historically significant features. Certain buildings would be rehabilitated to accommodate visitor facilities while keeping the historic context. Alternative D would provide visitors with a direct experience of historic features and quality interpretation. The built environment would be preserved and enhanced to provide an immersion experience. Visitors would be offered opportunities to engage in onsite living cultural activities. All cemeteries would be marked and there would be formal investigations to identify and quantify additional gravesites, restore some gravesites, and provide access for related families to these sites.

Values, traditions, and practices of traditionally associated people (also known as ethnographic resources) would be managed the same as alternatives B and C. Historic structures would be managed the same as alternative C.

Archeological Resources

In addition to the “Actions Common to All Alternatives” guidance, the NPS would increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeological district and/or a traditional cultural property designation. It would support demonstration projects that would be



Top and Middle: Before and after images of grave marker preservation at Siloama Church. Bottom: Gravesites at Kauhakō Crater. NPS photos.

designed specifically for visitor learning and reflection. There would be an increase in interpretation of archaeological sites and areas that are within the public zones of the park would be highlighted for visitors to experience.

Cultural Landscapes

In addition to the “Actions Common to All Alternatives” guidance, alternative D would be similar to alternative B with the following additions. Selected areas and landscape features that illustrate Kalaupapa’s many histories would be rehabilitated and restored. These areas could include patient residential gardens as well as ethno-botanical gardens. Selected areas that represent the cultural landscape could be adaptively used. Selected viewsheds could be maintained to enhance understanding of the larger landscape and re-create the views that previously existed.

Museum Collections

In addition to the “Actions Common to All Alternatives” guidance, in alternative D, museum collections items would be on display as exhibits within historic structures and at the visitor center, as appropriate. Implementation of the Scope of Collection would occur to direct acquisition and collection development. In addition, Kalaupapa-related collections that are housed in offsite repositories would be identified and the development of finding aids to implement.

Natural Resources

Air quality, soundscapes, lightscapes, water resources, soils and geologic resources, wildlife, scenic resources, fishing, hunting and gathering would be managed the same as alternatives B and C. Vegetation would be managed the same as alternative B. In addition,

the NPS would support demonstration projects about traditional uses for visitor learning.

Marine Resources

Same as alternatives B and C, the NPS would explore establishing a managed area within the marine portions of the park, in consultation with DLNR and community partners, to include areas with high fish biomass and/or other important marine resources. Monitoring and research would continue and would use both traditional and contemporary methods to track status and trends of fisheries and marine wildlife and conditions in the intertidal zone and coastal reefs. In addition, for alternative D, demonstrations of marine management techniques such as monitoring would be offered.

Interpretation and Education

The NPS would focus the content of interpretive and educational programs on the park’s updated interpretive themes that were developed as part of this GMP effort through the public planning process.

The NPS would greatly expand its growing interpretation and education division, including hiring staff to support a range of interpretive opportunities,



Kalaupapa Settlement across 'Awahua Bay. NPS photo.

including onsite interpretation, educational programs, and limited outreach programs to reach people who may not be able to visit the park. The focus of alternative D would be on educational efforts for the onsite visitor learning and enjoyment. The interpretation and education division would be the largest under alternative D and would provide the broadest range of learning and educational opportunities. These learning opportunities would be available through escort and self-guided tours. The NPS would involve patient residents, ‘ohana, and kama‘āina as cultural interpreters to tell the story of Kalaupapa.

Similar to alternative C, the NPS would provide facility-based interpretive programs, interpretive media, digital experiences, and on-site interpretive information and wayfinding. Paschoal Hall would function as the primary interpretive and orientation center.

An updated long-range interpretive plan would be developed to plan for the future of the park’s interpretive and educational goals. The plan would include identifying visitor experience goals, developing subthemes of the interpretive themes, and more detailed planning for specific sites within the park. It would provide recommendations about interpretive media, interpretive facilities, personal services, and direction for a wide range of interpretive and educational programs and partnerships. Alternative D would develop outreach materials and programs targeted on Molokai and Hawai‘i. Curriculum-based educational

programs and materials would be developed for lesson plans and traveling educational exhibits about Kalaupapa.

Visitor Use and Experience

Alternative D provides the widest range of visitor experiences within Kalaupapa. NPS would manage the visitor use and visitor facilities under this alternative. There would be organized tours for the general public. Visitors would not be as restricted and would be allowed the most freedom to explore areas of Kalaupapa on their own. There would be both structured and unstructured activities available for visitors. Paschoal Hall would serve as a visitor facility within the settlement. The emphasis on the visitor experience would be personal reflection, contemplation, culture, and history.

The number of visitors, orientation and entry pass system, access within Kalaupapa, age limit, and recreational activities would continue as in the common to all alternatives and would be very similar to alternative C. In addition, visitors would be allowed to access more areas on their own as part of the larger engagement zone. This includes unescorted access on the loop trail around the peninsula, loop trail around the crater, and to Wai‘ale‘ia Valley.

Overnight Use

Same as alternative C, plus overnight use could be the most extensive under this alternative.

Commercial Visitor Services

Same as alternatives B and C

Sustainable Practices and Responses to Climate Change

Same as alternatives B and C

Access and Transportation Facilities

In addition to the guidance in the “Actions Common to All Alternatives” section, land access, the pali trail, and Kalaupapa’s roads and trails would be managed the same as alternative C.

Air Access and Kalaupapa Airport

In the long-term, the Kalaupapa Airport would be open for public access to Kalaupapa. See the “Visitor Use and Experience” section for more details. Alternative D would include allowing larger planes with a limit of 20 passengers to use the Kalaupapa airport. Emergency fire responses at the airport would be required to meet the increased limit.

Kalaupapa Roads and Trails

Alternative D would also establish a new trail to Kalawao using the Old Damien Road. There would be an established trail created to the Wai‘ale‘ia waterfall. The loop trail around Kauhakō Crater would also be created. The unpaved road around the peninsula would be adapted to allow for pedestrian access with minimal signage.

Operations

Operational Facilities

Same as “Actions Common to All Alternatives”

Safety and Security

Same as alternatives B and C

Staffing

Alternative D would be implemented with the current staffing level (40 base funded) plus 20 full-time equivalent staff (FTEs). The NPS also maintains approximately 12 temporary positions funded by projects.

New positions would be necessary for the expected substantial increase in NPS management operations once the DOH departs and public visitation increases. NPS staff would replace specific DOH functions for site operations, manage-



Surveying Waikolu Stream. NPS Photo.

ment of the visitor use, and maintenance of historic buildings. An interpretation and education division would be created to share Kalaupapa’s history with a much broader audience in Hawai‘i and nationally and fulfill the educational outreach component of alternative D.

New positions would include a budget analyst, human resources specialist, and administrative technician for management and administration; an archeo-logical/anthropological technician for cultural resources; a horticulturalist for natural resources; a chief of interpretation, interpretive ranger, education specialist, and visitor use assistant for interpretation and education; and a car-penter, painter, utility systems repair operator, high voltage electrician, plumber, maintenance workers, and custodian.

In the long-term, the NPS would evaluate facility capacities, update the housing plan, and consider allowing family members of NPS staff, concessions, and partners if there is available housing space and infrastructure to accommo-date them at Kalaupapa. Based on this analysis and planning, the NPS would develop rules related to staff, concessions, and partner family members residing at Kalaupapa. The NPS would not build additional housing or substantially increase the capacity of infrastructure to support family members in the park.

Table 3.11 Alternative D Staffing by Division

Alternative D Staffing by Division	Base Funded
Management and Administration	3+3 new
Cultural Resources	5+1 new
Natural Resources	6+1 new
Facilities and Maintenance	19+10 new
Visitor Protection	6
Interpretation and Education	1+5 new
Total Staff	60

Cost Estimates

Annual Operating Costs

This alternative would be implemented with an additional 20 FTE as described above. These positions would add approximately \$1,330,000 to the operating base for alternative D. Additional operations and maintenance costs related to

capital investments would be \$885,000. The total annual operating costs for alternative D would be approximately \$6,445,000 per year.

Table 3.12 Alternative D Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	20 FTE (Total 60 FTE)
Additional Staffing Costs	\$1,330,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$885,000
Total Annual Operational Costs	\$6,445,000

One-time Capital Costs

The costs to implement alternative D focus on ensuring the long-term preserva-tion of Kalaupapa’s resources, promoting stewardship of the ‘āina, and con-necting people with the history of Kalaupapa NHP.

The costs include preservation and rehabilitation of historic structures and features, as well as improvements to facilities and infrastructure to eliminate health and safety hazards and to address structural deficiencies and deferred maintenance. Since this alternative includes the highest level of rehabilitation, this alternative would have the greatest reduction in deferred maintenance. The costs include resource management programs, visitor use, and interpretive and educational programs. Costs reflect all proposals of alternative C that could be implemented over the life of the general management plan.

One-time costs for alternative D include similar projects as described under alternative C. The difference in costs between alternative C and D is that alter-native D would include more projects related to visitor services, interpretation, and education.

Projects are identified under three different phases. Under alternative D, the following project types would be included in each phase:

Phase 1 projects are considered essential: this category includes cultural resource/historic preservation treatments that are necessary to ensure the long-term integrity of NHL-contributing structures; as well as life, health, and safety-related projects; infrastructure and access maintenance; and basic visitor services. Phase 1 projects total \$16,645,000. Most of this total cost is attributed to rehabilitation of historic structures and rehabilitation of the electric system.

Phase 2 includes projects that require significant historic building upgrades; non-historic structure (including infrastructure) rehabilitation; and additional cultural resources and interpretation and education projects. Phase 2 projects total \$15,380,000. Most of this cost is from historic preservation of NHL-con-tributing structures and additional rehabilitation work for the electric system, the re-paving of roads, and the use of non-historic structures for operations.

Phase 3 includes projects for a concession operation managed by a nonprofit or for-profit entity in the long term, when there is no longer a patient community at Kalaupapa. Implementation of these projects would require securing non-federal partner contributions. Phase 3 projects total \$1,680,000, representing the NPS share of rehabilitation costs for historic buildings for visitor services.

NPS costs would total \$33,705,000. Additional partner contributions for shared projects would total \$5,215,000. Most of these projects relate to religious insti-tution work on historic church buildings and other buildings for other partner uses. The gross cost estimate, including partner contributions, would total \$38,920,000. (Note: all costs are in 2012 dollars).

Cost estimates for alternative D are identified below in Table 3.13 and follow the guidance outlined in the “One-time Capital Cost” section under “Actions Common to All Alternatives.”

Action Plans, Studies, and Agreements

Same as alternative C

Boundaries and Land Protection

Same as Actions Common to All Alternatives



Top: St. Philomena Church, date unknown. Photo courtesy of Hawai'i State Archives. Bottom: Visitors outside St. Philomena Church today. NPS photo.

Table 3.13 Alternative D One-time Cost Estimates (in dollars)

Project Description	Historic Stabiliza- tion	Historic Preserva- tion	Historic Rehabilita- tion	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construc- tion	Facility Removal	Other Project (non-facility)
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)									
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites. Conduct ethno-graphic research, develop an historic structures report(s), and conduct data recovery for archeo-logical resources.	1,120,000	1,290,000	760,000						810,000
Natural Resources: Fence areas to reduce feral ungulates and reduce vegetation to protect the settlement									190,000
Interpretation, Education, and Visitor Infor- mation: Update long-range interpretive plan, develop interpretive exhibits and displays, replace waysides, and develop off-site educational programs						180,000			105,000
Safety / Hazardous Waste: Inspect fire sup-pression system, conduct hazardous materials assessment, conduct projects identified in fire management plan									1,230,000
Infrastructure: Rehabilitate electric system, main-tain pump house and fuel storage					10,000	2,240,000			
Access: Continue to rehabilitate the pali trail			740,000						
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	60,000	340,000	3,380,000		90,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing	10,000	670,000	1,330,000						
Visitor Services and Community Use: Reha-bilitate Paschoal Hall and Lion’s Club Pavilion for continued community and visitor use			200,000	1,890,000					
TOTAL PHASE 1	16,645,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	2,335,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)									
Cultural Resources: Museum catalog backlog, museum upgrades, rehabilitate historic structures	690,000		190,000						150,000

Project Description	Historic Stabiliza- tion	Historic Preserva- tion	Historic Rehabilita- tion	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construc- tion	Facility Removal	Other Project (non-facility)
Natural Resources: Monitor air quality and soundscapes, upgrade shade house nursery, and explore marine managed area designation									140,000
Interpretation: Produce park video and interpre-tive exhibits for historic structures									850,000
Infrastructure: Re-pave roads, rehabilitate electri-cal system, produce visitor transportation plan						3,220,000			100,000
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	70,000	60,000	1,440,000		105,000				
Partner Use: Stabilize, preserve, and rehabilitate residences and other structures for partner use (NPS share)	15,000	300,000	1,260,000		10,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing	10,000	1,760,000	3,830,000						
Visitor Services and Community Use: Pre-serve or rehabilitate Craft and Storage Building, McVeigh Hall, and various restrooms for commu-nity and visitor use. Construct waysides and kiosk at the Kalaupapa Overlook.			860,000	250,000			20,000		40,000
TOTAL PHASE 2	15,380,000	785,000	2,120,000	7,580,000	250,000	125,000	3,220,000	20,000	1,280,000
PHASE 3 (Facility rehabilitation for concession operations and public use—Long-term)									
Concession Operations (Commercial or Non-profit): Preserve or rehabilitate various historic buildings for basic visitor services (NPS share)		180,000	1,500,000						
TOTAL PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0
ALTERNATIVE D TOTALS									
PHASE 1	16,645,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	2,335,000
PHASE 2	15,380,000	785,000	2,120,000	7,580,000	250,000	125,000	3,220,000	20,000	1,280,000
PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0
PHASE 1, 2 AND 3	33,705,000	1,050,000	5,360,000	17,420,000	15,700,000	225,000	6,830,000	20,000	3,615,000
<i>Additional Partner Contributions</i>	<i>\$5,215,000</i>	<i>0</i>	<i>535,000</i>	<i>3,310,000</i>	<i>190,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,180,000</i>
<i>Total with Partnership Funding</i>	<i>\$38,920,000</i>	<i>1,050,000</i>	<i>5,715,000</i>	<i>19,230,000</i>	<i>15,890,000</i>	<i>225,000</i>	<i>6,830,000</i>	<i>20,000</i>	<i>4,795,000</i>

Alternatives Summary Table

For more detailed descriptions of the actions, see the alternatives descriptions in this chapter.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Overall Concept Summary			
As long as patients live at Kalaupapa, the National Park Service (NPS) will manage Kalaupapa in cooperation with the Department of Health (DOH) and its other partners to maintain and preserve the character of the community. NEAR-TERM guidance, referred to below in the summary, addresses this time period. LONG-TERM guidance is the time period when patients no longer reside at Kalaupapa and the DOH ceases operations within the park.			
<p>Alternative A, no action, assumes that existing programming, facilities, staffing, and funding would generally continue at current levels to protect the values of Kalaupapa NHP in the near term.</p> <p><i>Additional concept guidance:</i></p> <p>Continue existing agreements with agencies and organizations.</p> <p>No long-term guidance for visitation and use of historic buildings after Department of Health (DOH) departs Kalaupapa.</p>	<p>Alternative B focuses on maintaining Kalaupapa’s spirit and character by limiting visitation to the park.</p> <p><i>Additional concept guidance:</i></p> <p>Similar to Alternate A, but provides future guidance for managing Kalaupapa once DOH leaves.</p> <p>Manage resources to protect and maintain.</p> <p>Maintain most existing rules and regulations, including visitation limits of 100 people per day and age restrictions.</p> <p>Provide highly structured general public visitation.</p> <p>Develop extensive outreach program to share Kalaupapa’s history off-site.</p>	<p>Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa’s lands in collaboration with the park’s many partners.</p> <p><i>Additional concept guidance:</i></p> <p>Manage Kalaupapa’s diverse resources from mauka to makai to protect and maintain their character and historical significance.</p> <p>Provide hands-on stewardship activities for service and volunteer work groups to have meaningful learning experiences, while contributing to the long-term preservation of resources.</p> <p>Provide general public visitation. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap.</p>	<p>Alternative D focuses on personal connections to Kalaupapa through visitation by the general public.</p> <p><i>Additional concept guidance:</i></p> <p>Manage resources for long-term preservation through NPS-led programs.</p> <p>Focus on learning about Kalaupapa’s people and history through direct experience, exploration, and immersion in the historic setting.</p> <p>Provide highest level of visitation among alternatives. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap.</p>

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Management Structure, Partnerships, and Agreements			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none">As long as patients live at Kalaupapa, continue to manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the present character of the community.DOH—continue to manage operations related to the care of the patient community and DOH staff support.DOH—continue to govern Kalawao County under Hawai‘i Revised Statute 326.Continue existing cooperative agreements with DOH, DLNR, DOT and the lease agreement with DHHL.Continue cooperative agreements with religious institutions as long as they are viable. <p>LONG-TERM Common to All:</p> <ul style="list-style-type: none">Work collaboratively with DOH, DHHL, DLNR, and DOTto determine NPS, state and county governance of Kalaupapa when DOH departs.NPS and DHHL could renegotiate and renew the lease before it expires in 2041.Work collaboratively with DLNR, DOT, religious institutions, and R. W. Meyer Ltd. for long-term management of lands and resources within Kalaupapa NHP boundary. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none">Partner with state and local agencies, adjacent landowners, and organizations for resource protection and interpretive and educational programs.			
See Common to All	For alternatives B, C, and D in the LONG-TERM: <ul style="list-style-type: none">Assume full management of visitor access, activities, and overall management of Kalaupapa.Collaborate with DOH and update the transition plan that would guide the turnover of management responsibilities for visitor use, historic structures and facilities, and operational responsibilities.The NPS and DHHL would develop a cooperative agreement to define roles and responsibilities for the long-term care and use of the Kalaupapa Settlement and DHHL lands.Recommend that homesteading not occur in Kalaupapa NHP. If DHHL were to allow homesteading in the future, recommend that it would be limited and that the homesteaders be engaged in activities that support the park purpose.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Cultural Resources			
(Cultural resources include kūpuna and their stories, archeological resources, historic buildings, and cultural landscapes)			
Common to All: <ul style="list-style-type: none">Conduct cultural resource projects, monitoring programs, baseline studies, inventories, and interpretation of cultural resources.Stabilize and preserve cultural landscape features that contribute to the National Historic Landmark designation on a case-by-case basis.Continue active management and care of known cemeteries, including ongoing stabilization of grave sites.Continue ethnography program / research through oral histories and informal discussions.Preserve archeological sites for their interpretive and research values and traditional cultural activities.Employ a range of historic preservation treatments to protect historic structures.Document and preserve museum collections items as part of the archives and manuscript collections.			
See Common to All	Emphasize cultural resource, inventory, documentation, preservation and research, especially ethnographic research with ‘ohana.	Emphasize cultural resource, inventory, documentation, preservation, rehabilitation, and selective restoration of historic features. Collaborate with partners and service groups to ensure the long-term protection of historic features from the Hansen’s disease era and those related to early native Hawaiian habitation and use. Increase stewardship activities and hands-on learning opportunities related to the protection and preservation of archeological resources, historic structures, cultural landscapes, and museum collections.	Emphasize cultural resource, inventory, documentation, preservation, rehabilitation, and selective restoration of historic features. Preserve and enhance the built environment to provide an immersion experience. Visitors would be offered opportunities to engage in on-site living cultural activities.
Values, Traditions, and Practices of Traditionally Associated People (Also Referred to as Ethnographic Resources)			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">Enhance the ethnography program with additional staff and collaboration with partners focused on patients, their ‘ohana, kōkua, and kama‘āina.Focus on conducting formal and informal oral histories, documentation, and research of existing and past cultural traditions and peoples associated with Kalaupapa.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Archeological Resources			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeological district and/or a traditional cultural property designation.		
Historic Structures and Cultural Landscapes			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Develop and implement historic structures report(s) for all historic structures that contribute to the National Historic Landmark; develop a cultural landscape report.• Efforts would be made to identify, stabilize, and mark grave sites and provide access for families.• Maintain an adaptive management philosophy, considering new opportunities and risks and reprioritizing historic preservation projects when needed. In the event of a catastrophic loss of historic structures, the NPS would make decisions on a case-by-case basis to determine the future management of impacted buildings.• Non-historic structures could be stabilized, maintained, remodeled, and adaptively reused for operations, or allowed to deteriorate until they become a safety hazard, and removed.		
See Common to All	Focus on stabilization. As possible, rehabilitate historic structures for visitor facilities, partner uses, park operations, and interpretive exhibits.	At a minimum, stabilize all NHL-contributing historic structures. Guide the treatment of individual buildings through a phased strategy that considers historic preservation goals and management needs. Historic preservation treatments include stabilization, preservation, rehabilitation, and adaptive use. Use historic structures for visitor facilities, partner uses, and park operations and use select historic structures for interpretive exhibits. Select historic structures would remain in a stabilized condition until partnership arrangements are made to secure funding for long-term treatment and use.	Same as alternative C
Museum Collections			
See Common to All	Provide ways for visitors to interact with the collections onsite and offsite.	Same as alternative B plus: Collaborate with partners in managing, documenting, and conducting research related to the collections.	Same as alternative C

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Natural Resources			
Common to All: <ul style="list-style-type: none">• Implement natural resource management program: research, inventory, monitoring, feral animal control, fencing, hunting, rare species stabilization, and incipient alien species removal.• Continue active participation and pursuit of East Molokai Watershed Partnership goals.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Expand research and monitoring programs to better understand ecosystem processes using both traditional and contemporary methods.		
See Common to All	Same as alternative C	Involve partners and stewardship groups in natural resource management activities.	Offer demonstrations of resource management techniques.
Vegetation			
See Common to All	Continue vegetation monitoring program and expand nursery program	Continue and expand the vegetation management program.	Same as alternative B
Wildlife			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Focus on reducing nonnative wildlife species and improving native habitat for native birds and other native wildlife.• Establish a monitoring program to track wildlife status and trends.		
Marine Resources			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Explore the establishment of a marine managed area in consultation with DLNR and community partners to encompass significant resources.		
See Common to All	No additional guidance in alternative B	Work to restore select marine areas, which could include enlisting stewardship groups to help remove alien species.	Demonstrations of marine management techniques such as monitoring would be offered.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Fishing, Hunting, and Gathering			
NEAR-TERM Common to All:			
<ul style="list-style-type: none">NPS regulations would continue to apply in the marine area of the park; Fishing, hunting and gathering on the Kalaupapa peninsula would also continue to be managed according to State of Hawai‘i and Kalawao County laws and regulations. Public hunting is allowed per DLNR regulations in the Molokai Forest Reserve area within the park and Pu‘u Ali‘i Natural Area Reserve.Pursuant to DOH regulations, Patients and other residents of Kalaupapa are currently allowed to collect salt and gather plant resources.			
See Common to All	For alternatives B, C, and D:		
	<ul style="list-style-type: none">Work cooperatively with the State of Hawai‘i and community partners to manage marine resource use and also ensure the sustainability of the resources for future generations.Look to existing cooperative models for fishing best practices, such as Mo‘omomi, Ā‘hihi Kīna‘u, and Kaho‘olawe models.Hunting would continue to be managed according to State of Hawai‘i laws. The NPS would work cooperatively with State of Hawai‘i and partners to establish new regulations for safety above and below the 500-foot elevation.Engage partners and service groups in preservation activities that support traditional cultural uses.		
Wild and Scenic River			
Common to All:			
<ul style="list-style-type: none">Recommend updating the national rivers inventory to add Culture and History to Waikolu Stream’s outstandingly remarkable valuesEvaluate and/or complete a suitability analysis related to wild and scenic river designation of Waikolu Stream.			
Interpretation and Education			
NEAR-TERM Common to All:			
<ul style="list-style-type: none">Maintain park website, exhibits, waysides, and park brochure to share the park’s history with the public and to orient visitors to Kalaupapa NHP.Continue to develop interpretation and education division and limited interpretive programs and activities.The private patient-run tour company and allied organizations and institutions would continue to provide most on-site interpretation and education.Continue and expand outreach programs on topside Molokai.			
See Common to All	For alternatives B, C, and D:		
	<ul style="list-style-type: none">Update the long-range interpretive plan for the future of the park’s interpretive and educational goals.Develop curriculum-based educational programs and materials.Provide outreach programs for youth and communities.Develop interpretive media, such as publications, exhibits, a film, educational websites, and a walking tour.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	LONG-TERM OVERALL GUIDANCE: Focus most educational efforts offsite and through extensive outreach efforts to allow people to learn about Kalaupapa without actually visiting the site.	LONG-TERM OVERALL GUIDANCE: Focus most educational efforts on on-site visitor learning and enjoyment opportunities that contribute to the preservation of Kalau-papa’s resources. Stewardship groups could be engaged in a wide variety of park projects. Group visitation engaged in hands-on learning would assist the park in improving resource conditions.	LONG-TERM OVERALL GUIDANCE: Focus most educational efforts on onsite visitor learning and enjoyment. Alternative D would provide the broadest range of learning and educational opportunities for tradi-tional visitors that are by escort or self-guided.
Interpretation and Education Division			
See Common to All	Build on the growing interpretation and education division, including hiring staff.	Greatly expand the growing interpretation and education division over time, including hiring staff. Involve residents, ‘ohana and kama‘āina as cul-tural interpreters to tell the story of Kalaupapa.	The interpretation and education division would be the largest under alternative D and would provide the broadest range of learning and educa-tional opportunities. Involve residents, ‘ohana and kama‘āina as cultural interpreters to tell the story of Kalaupapa.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Visitor Orientation and Interpretive Facilities			
See Common to All	Convert Mother Marianne Library to a visitor orientation facility. Construct a visitor contact station inside the park boundary at Pālā‘au State Park to provide visitor engagement.	Paschoal Hall would be used as the orientation facility. Mother Marianne Library could function as a resource center for volunteer orientation and training. An information kiosk would be constructed inside the park boundary at Pālā‘au State Park. Improve signs and interpretive waysides. Site interpretive information, such as wayside panels, at key locations throughout the park. Select patient homesites, historic and natural features, and scenic viewing areas would provide visitors with a varied and in-depth understanding about Kalaupapa’s cultural and natural history.	Same as alternative C
Visitor Use and Experience			
NEAR-TERM Common to All: <ul style="list-style-type: none">Continue DOH visitation rules and regulations to provide a well-maintained community for the patient residents.Continue to manage visitor protection and facilities that support visitation.General public visitation would be limited to 100 people per day as specified in the enabling legislation and desired by the Kalaupapa Patients Advi-sory Committee.Visitation would be day-use only, and visitors would continue to need an escort.No entrance fees; continue fees for service such as the mule ride and tours.Children under the age of 16 would not be allowed.Patient residents and DOH and NPS staff would continue to sponsor family, friends, and nonresident staff for day and overnight stays.DOH would continue to manage the visitor permit and sponsorship system.DOH would continue to prohibit recreational uses that are not compatible with the purpose of the park. NEAR-TERM and LONG-TERM Common to All: <ul style="list-style-type: none">No public camping within Kalaupapa NHP, including Waikolu Valley, due to concerns about resource protection and safety.Visitors would continue to have free and unescorted access on the premises of the Pālā‘au State Park within the boundary of Kalaupapa NHP.			

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	LONG-TERM: Focus on information and interpretation for the public off-site.	LONG-TERM: Visitor rules and regulations would be designed to provide a variety of high quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship. Visitor activities would be structured and unstructured to accommodate visitor needs and desires that are compatible with the purpose of the park. Visitors would be able to explore areas of Kalaupapa on their own. Visitors could participate in hands-on stewardship activities that contribute to the preservation, rehabilitation, and selective restoration of resources.	LONG-TERM: Visitor rules and regulations would be designed to provide a variety of high quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship. Provide the widest range of traditional visitor experiences within Kalaupapa. Visitor activities are structured and unstructured. Visitors would be able to explore areas of Kalaupapa on their own.



Visitors prepare for a mule ride down the pali trail. NPS photo.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Number of Visitors			
See Common to All	LONG-TERM: Maintain current cap for general public visitation—limited to 100 people per day at any one time. Visitation would be through tours managed by concessions and commercial use authorizations. More opportunities to visit Kalaupapa would be available on specific days, such as family days, for special events for people with ancestral connections to Kalaupapa.	LONG-TERM: The number of visitors allowed per day would change and would be determined and managed by: <ul style="list-style-type: none">• capacity of facilities• limits through concessions contracts and commercial use authorizations,• an entry pass system• user capacity guidance Work with concessioners and commercial operators to set limits on the number of visitors who purchase commercial services as part of their visit to Kalaupapa NHP. An entry pass system would be established to provide structured access to portions of Kalaupapa NHP. Foot access from the top of the pali would be allowed to the Kalaupapa Settlement for day use by Molokai residents and general visitors. Air access to Kalaupapa would also be allowed, and people not associated with a commercial tour or lodging could visit the park as a day-use visitor.	LONG-TERM: Same as alternative C
Orientation			
See Common to All	For alternatives B, C, and D in the LONG-TERM: <ul style="list-style-type: none">• Provide orientation information on the internet, at off-site locations, and at key park entrance points to help prepare visitors for their trip to Kalaupapa.• Orientation and interpretive exhibits could be at the Molokai Ho’olehua Airport.• Consider establishing an NPS presence for visitor orientation in Kaunakakai and in partnership with state agencies or other entities.• Provide orientation information at topside trailhead, bottom of the pali trail upon entering the Kalaupapa Settlement, and at the Kalaupapa Airport.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	<p>Provide in-depth educational materials at the staffed Pālā’au State Park facility.</p> <p>Visitors wishing to enter the Kalaupapa Settlement would receive required orientation at Mother Marianne Library or other park facility.</p> <p>Visitors would need to ensure that they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.</p>	<p>An entry pass system would be established for all visitors to Kalaupapa Settlement and other areas of the park.</p> <p>Visitors wishing to enter the Kalaupapa Settlement and other areas of the park would receive required orientation and required entry pass at Paschoal Hall or other park facility.</p> <p>Visitors using the free day-use option would need to ensure they leave the park by dusk, unless they have arrangements for overnight accommodations within the park. Special provisions for repeat visitors could be established.</p>	Same as alternative C
Access within Kalaupapa NHP			
See Common to All	<p>For alternatives B, C, and D:</p> <ul style="list-style-type: none">• Areas above the 500 foot elevation in the Wao Akua Zone are largely inaccessible. Hunters would continue to need a valid state hunting permit.• Access from outside the park through the Wao Akua Zone to the peninsula would be discouraged and could be prohibited to ensure safety and compliance with the entry pass system.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	<p>LONG-TERM:</p> <p>Visitors would be allowed to have unescorted access within the settlement.</p> <p>Visiting Kalawao and all other parts of the park would require an escort.</p>	<p>LONG-TERM:</p> <p>Visitors would have escorted and unescorted access after they obtain a required park orientation and an entry pass at Paschoal Hall.</p> <p>Visitors would have free and unescorted access in the Engagement Zone, down the pali trail, and to the limit of the Kalaupapa Settlement.</p> <p>Visitors would be allowed to travel from the Kalaupapa Settlement to Kalawao, the top of Kauhakō Crater, and access the memorial on their own.</p> <p>Visitors would need an NPS, partner, or commercial guide to access all other locations below the 500 foot elevation.</p>	<p>LONG-TERM:</p> <p>Same as alternative C, plus:</p> <p>Visitors would be allowed to access more areas on their own as part of the larger engagement zone, including the loop trail around the peninsula, loop trail around Kauhakō Crater, and trail to Wai’ale’ia Valley.</p>
Age limit			
See Common to All	<p>LONG-TERM:</p> <p>Children under the age of 16 would not be allowed to visit Kalaupapa.</p>	<p>LONG-TERM:</p> <p>When there is no longer a patient community at Kalaupapa, the age restriction would be lifted to allow visitation by children.</p> <p>Children under the age 16 would be required to have an adult escort for safety purposes and enforcement of visitor rules and regulations.</p>	<p>LONG-TERM:</p> <p>Same as alternative C</p>

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Overnight Use			
See Common to All	<p>LONG-TERM:</p> <p>There would be limited overnight use. Visitors who have a pre-existing association and/or ancestral connections to Kalaupapa would be allowed overnight access.</p> <p>Limited overnight use by the general public would be explored.</p>	<p>LONG-TERM:</p> <p>Same as Alternative B, plus:</p> <p>Limited overnight use would be offered for organized groups and park partners.</p> <p>Overnight use by the general public would be explored.</p>	<p>LONG-TERM:</p> <p>Same as Alternative C, plus: Overnight use could be the most extensive under this alternative.</p>
See Common to All	<p>For alternatives B, C and D:</p> <ul style="list-style-type: none">• The NPS would manage overnight use, and the NPS could delegate management responsibilities to partners, including agencies, concessions, and nonprofit organizations.• Select historic buildings and facilities have been identified for overnight use and the areas are described in the “Kalaupapa Settlement” section.• The rehabilitation of historic buildings for public overnight use would require securing nonfederal partner contributions.• Visitor accommodations would need to meet basic life safety codes.		
Commercial Visitor Services			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none">• Continue commercial activities operated by patient residents for tours and Fuesaina’s Bar. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none">• Continue commercial use agreement with the mule ride operator.• Provide organized tours for the general public.• Continue to support a cooperating association to operate the bookstore for educational and merchandise sales.• Continue to follow guidance from Public Law 95-565 which provides patients a first right of refusal to provide revenue-producing visitor services, including such services as providing food, accommodations, transportation, tours, and guides; and the General Lease No. 231 with DHHL that gives second right of refusal to native Hawaiians for revenue-producing visitor service after patients have exercised their first right of refusal. This would allow native Hawaiians special opportunities in being involved in Kalaupapa’s visitor services and financially benefitting from such opportunities.			

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	For alternatives B, C, and D in the LONG-TERM: <ul style="list-style-type: none">• Concessioners or nonprofit organizations would assist the NPS in providing a range of visitor services.• Commercial services could include tours, mule rides, shuttle services, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging.		
Sustainable Practices and Responses to Climate Change			
Common to All: <ul style="list-style-type: none">• Strive to reduce energy dependency by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices• Use science, adaptation, mitigation, and communication in meeting the park’s goals for sustainable practices and responses to climate change• Seek to minimize motor vehicle use by staff, volunteers, and visitors in order to reduce gas consumption and carbon emissions• Continue bicycle use• Continue community recycling program• Monitor possible climate change effects• Engage in the NPS Climate Friendly Parks program and Climate Action Plan• Encourage a “pack-in, pack-out” policy for all visitors• Continue to install photovoltaic panels in selected areas on a limited basis such that visual impacts to the cultural landscape are minimized.• Consider the feasibility of a comprehensive energy conservation strategy, including the consolidation of renewable energy generation equipment in one or more locations.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Increase documentation and monitoring efforts to understand the effects of climate change, including assessing the vulnerability of cultural and natural resources.• Involve partners and stewardship groups in monitoring efforts.• Conduct scenario planning and explore adaptation strategies for resources with partners and subject matter experts.• Formally study the feasibility of consolidating energy generation in one or more locations. Determine the most advantageous renewable source(s), including solar, solar hot water, wind, geothermal, and others.• Implement energy conservation practices, such as natural ventilation, strategic shading, and occupancy sensors, as well as structural retrofits and equipment testing and upgrading.• Implement water conservation policies and actions.• Reduce vehicle fleet to the minimum number required for maintenance operations and visitor services.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Access and Transportation Facilities			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none">Continue DOH permitted options for entering the park – enter by foot or mule on pali trail or by plane into Kalaupapa Airport. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none">No new transportation routes or methods of access would be constructed or allowed.Continue to maintain the historic pali trail for foot and mule traffic.Offer to assist the local community with trail planning adjacent to Kalaupapa NHP on topside Molokai.The Kalaupapa Airport would continue to serve the transportation needs of the Kalaupapa community and visitors to the park.Encourage the DOT and FAA to provide safe and adequate access without increasing pressure on Kalaupapa’s way of life, and work with commercial tour flight operators to continue avoiding flight paths in airspace over the settlement.Continue to prohibit sea access for visitors in the one-quarter mile ocean corridor within the park. Special events within the ¼ mile ocean corridor would require a special use permit.Limit water access to the barge for general supplies and project materials to Kalaupapa and to official NPS boat access.The NPS would not support a ferry service to Kalaupapa.Reduce transportation by motor vehicles within Kalaupapa.Whenever possible, historic roads and trails would be used, adapted, and re-used.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">Enhance the pali trail by clearing vistas, establishing rest stops, and defining places for mules to pass along the trail.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	No additional guidance in alternative B	<p>LONG-TERM:</p> <p>Open the pali trail for public access to Kalaupapa.</p> <p>Partner with others for trail maintenance.</p> <p>Allow public access from Kalaupapa Airport to the settlement.</p> <p>Develop a transportation plan for visitor and operational transportation. It would address universal accessibility, the removal of duplicative roads, and areas where access could be restricted for resource protection.</p> <p>Maintain the character of roads throughout the Kalaupapa Settlement to assure compatibility with the historic character.</p> <p>Replace and/or establish directional signs for safety and orientation.</p>	<p>LONG-TERM:</p> <p>Same as alternative C, plus:</p> <p>Allow larger planes with a limit of 20 passengers to use the Kalaupapa airport. Emergency fire responses at the airport would be required to meet the increased limit.</p> <p>Establish a new trail to Kalawao using the Old Damien Road.</p> <p>Establish a trail to the Wai‘ale‘ia waterfall.</p> <p>Create a loop trail around Kauhakō Crater.</p> <p>Adapt the unpaved road around the peninsula to allow for pedestrian access with minimal signage.</p>



Kalaupapa Settlement, early 1900s. Photo Courtesy of the Bishop Museum.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Operations			
NEAR-TERM Common to All:			
<ul style="list-style-type: none">Continue to use historic structures and facilities by patient residents, DOH, NPS, and partners.Continue to maintain all NPS managed administrative facilities.Continue to share administrative facilities with DOH where feasible.NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.			
NEAR-TERM and LONG-TERM Common to All:			
<ul style="list-style-type: none">New facilities would only be considered if adaptive re-use of existing structures is clearly not feasible for the required function.Continue to manage infrastructure, including the water, sewage, communication, and trail system. Assist Maui Electric in managing the electrical distribution system. Improve the water system for water conservation measures.Safety and security would continue to be a high priority. Integrate operational leadership concepts and strategies into all aspects of management.<ul style="list-style-type: none">Continue current partnerships with emergency management agencies, including Maui County Police and Fire and Coast Guard for search and rescue operations, air medical transport, and law enforcement. Emergency medical services would include first responder capability.Continue to medically evacuate individuals with life threatening emergencies by air transport to the nearest medical facilities.Adapt and modify the current DOH emergency management plan to meet the needs of the changing Kalaupapa community.Continue to implement the 2011 fire management plan and update as needed.			
See Common to All	For alternatives B, C, and D in the LONG-TERM: <ul style="list-style-type: none">Increase ranger patrols along Damien Road and to Kalawao.Ranger patrols on the pali trail would shift in focus from citing visitors who do not have a “sponsor” and who are under age 16, to a focus on visitor protection, providing information, and visitor safety.		
Boundaries and Land Protection			
Common to All:			
<ul style="list-style-type: none">Continue to act on the enabling legislation (Public Law 95-565) that authorizes the Department of the Interior to explore acquisition, land donation, or exchange with DHHL, DLNR, and other landowners within the boundary of the park.The findings of the Hawai‘i Area Studies that fulfilled the direction of Public Law 105-355, Sec. 511 would continue to be valid, and Congress could decide to act on the study’s findings which determined that management by the NPS and designating these areas as part of the national park system would provide the most effective long-term protection of the area and provide the greatest opportunities for public use.			

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	For alternatives B and C: Lands Adjacent and Near to Kalaupapa National Historical Park <ul style="list-style-type: none">Recommend that Pelekunu Preserve and a portion of Pu‘u O Hoku Ranch be added to the national park system through transfer by donation or sale.These areas could be managed as a “Preserve” whereby hunting, fishing, and gathering would be allowed in accordance with State of Hawai‘i rules and regulations.Two options for national park designation could be considered: 1) North Shore Cliffs National Preserve and 2) Kalaupapa National Historical Park and Preserve.These actions would require congressional legislation to designate the new lands as a national preserve.Landownership within the proposed boundary area could be both public and private.All ownership and access rights would be respected and remain in place. No private property rights would be diminished as a result of Congress authorizing a bound-ary adjustment.Maui County would retain local land use jurisdiction for all lands that remain in private ownership within the newly established national preserve.Private landowners within the newly designated areas would have the option of retain-ing their property or selling either a full or partial interest (e.g. easement) in their property to the National Park Service. Recommend that acquisition by condemnation or eminent domain would not be authorized.Kalaupapa NHP staff would manage the proposed new preserve in collaboration with native Hawaiian entities that support best practices related to management of Hawai‘i’s natural and cultural resources, including adaptive management, non-regula-tory codes of conduct, community involvement, and education. The NPS would con-tinue its role in the East Molokai Watershed Partnership to protect the best remaining native forest watershed areas on the East Molokai Mountains.		See Common to All



St. Philomena Church in Kalawao. NPS photo.

Table 3.15 Summary of Costs

Project Description	Alternative A	Alternative B	Alternative C	Alternative D
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)				
Cultural Resources	2,350,000	3,370,000	3,420,000	3,980,000
Natural Resources		190,000	190,000	190,000
Safety / Hazardous Waste	30,000	1,230,000	1,230,000	1,230,000
Infrastructure	2,260,000	2,250,000	2,250,000	2,250,000
Access	740,000	740,000	740,000	740,000
Operations	3,800,000	3,810,000	3,870,000	3,870,000
Housing (historic buildings for NPS and patient resident housing)	7,400,000	1,430,000	2,010,000	2,010,000
Interpretation, Education, and Visitor Information		515,000	285,000	285,000
Community Use	120,000	620,000	2,090,000	2,090,000
TOTAL PHASE 1	16,700,000	14,155,000	16,085,000	16,645,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)				
Cultural Resources	365,000	1,050,000	785,000	1,030,000
Natural Resources		140,000	140,000	140,000
Infrastructure	3,230,000	3,320,000	3,320,000	3,320,000
Operations	815,000	3,215,000	2,575,000	1,685,000
Partner Use		1,065,000	1,585,000	1,585,000
Staff Housing (historic buildings for NPS housing)	2,910,000	4,835,000	5,595,000	5,600,000
Interpretation	70,000	755,000	850,000	850,000
Community Use and Visitor Services	440,000	2,470,000	1,170,000	1,170,000
TOTAL PHASE 2	7,830,000	16,850,000	16,020,000	15,380,000

Project Description	Alternative A	Alternative B	Alternative C	Alternative D
PHASE 3 (Concessions—Long-term)				
Concession Operations (Commercial or Nonprofit)		1,210,000	1,680,000	1,680,000
TOTAL PHASE 3		1,210,000	1,680,000	1,680,000
OVERALL TOTALS				
PHASE 1	16,700,000	14,155,000	16,085,000	16,645,000
PHASE 2	7,830,000	16,850,000	16,020,000	15,380,000
PHASE 3		1,210,000	1,680,000	1,680,000
PHASES 1, 2, AND 3	24,530,000	32,215,000	33,785,000	33,705,000
<i>Additional Partner Contributions</i>	<i>900,000</i>	<i>4,434,000</i>	<i>6,085,000</i>	<i>5,215,000</i>
<i>Total with Partnership Funding</i>	<i>25,430,000</i>	<i>36,650,000</i>	<i>39,870,000</i>	<i>38,920,000</i>
Annual Operating Costs (FY 13)	\$4,230,000	\$4,230,000	\$4,230,000	\$4,230,000
Additional Staffing (FTEs)	0 FTE (Total 40 FTE)	14 FTE (Total 54 FTE)	17 FTE (Total 57 FTE)	20 FTE (Total 60 FTE)
Additional Staffing Costs	\$0	\$810,000	\$1,060,000	\$1,330,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$0	\$885,000	\$885,000	\$885,000
Total Annual Operating Costs	\$4,230,000	\$5,925,000	\$6,175,000	\$6,445,000



Molokai lighthouse. NPS photo.

User Capacity

Overview

General management plans are required to include identification of and implementation commitments for user capacities for all areas of a national park unit. The National Park Service defines user capacity as the type and level of use that can be accommodated while sustaining the quality of resources and visitor opportunities consistent with the purpose of a national park unit.

For the purpose of this plan, user capacity would address visitor use and use by patient residents, DOH, and NPS staff. User capacity depends upon a variety of factors including facility space, physical and logistical constraints, resource resiliency, and desired conditions for resources and visitor experiences. In managing for user capacity, a variety of management tools and strategies would be employed, including regulating the number of people in the Park and managing the levels, types, behaviors, and patterns of visitor use in order to protect the condition of the resources and quality of the visitor experience. The ever-changing nature of visitor use requires a deliberate and adaptive approach to user capacity management involving monitoring, evaluation, actions (managing visitor use), and adjustments to ensure a unit’s values are protected.

The foundations for making user capacity decisions in this GMP are the purpose, significance, special mandates, and management zones associated with the park. The purpose, significance, and special mandates define why the park was established and identify the most important resources, values, and visitor opportunities that would be protected and provided. The management zones in each action alternative describe the desired resource conditions and visitor experiences, including appropriate types of activities and general use levels, for different locations throughout the park. The zones, as applied in the alternatives, are consistent with, and help the National Park Service achieve, its specific purpose, significance, and special mandates. As part of the National Park Service’s commitment to implement user capacity, the park staff would abide by these directives for guiding the types and levels of visitor use that would be accommodated while sustaining the quality of park resources and visitor experiences consistent with the purposes of the park.

Managing Use Levels

There are a variety of logistical and facility constraints that must also be considered in determining appropriate types and levels of use at Kalaupapa. Because Kalaupapa is an isolated peninsula on a remote Hawaiian Island, all aspects of human use must be considered. Food, materials, and garbage must be transported by barge, plane, or by foot or mule on the pali trail. Access to Kalaupapa is difficult and foot access on the pali trail is physically challenging. The mule rides down the trail and air access are costly. Boat access is not allowed, unless through a special use permit, because of unsafe mooring options within the park. The lack of medical services, difficulties in responding to an emergency for large numbers of visitors, as well as fire safety need to be considered in management of user capacity.

The limited number and size of facilities also set the side boards for determining overall user capacity at Kalaupapa NHP. These facilities include buildings, structures, the pali trail, utilities, and supporting infrastructure. The overnight capacity of the buildings and the capacity of the water and sewage systems have been identified through data gathering for this GMP. Through this planning process, it has been determined that the number and size of these facilities and systems to support more people would not substantially increase. When facilities and systems need replacement or improvements, the facilities would generally be maintained to support current levels of use. Table 3.16 provides a summary of facility capacities; the capacities of facilities and infrastructure are described in more detail in the Affected Environment chapter.

Table 3.16 Facility Capacity

Overnight Lodging	Lodging facilities can support a maximum of 368 people per night, based on a pillow count of available bed space within the residential buildings at Kalaupapa Settlement.
Water System	The water system could support a maximum of 300 people per day, based on available water and the cost benefits of converting diesel to solar power for the pumping and water treatment systems.
Sewage System	The sewage system could support a maximum 300 people per day, based on the septic and cesspool systems and professional judgment of NPS maintenance staff.

Within the context of Kalaupapa NHP’s limited facility capacities, guidance for the park’s overall user capacity addresses both visitor use (including day visitors, sponsored overnight guests, and potential overnight visitors) and current patient resident and DOH and NPS staff. The patients, DOH, and NPS have priority for occupying facilities in order to maintain the patient resident community and operations. Once the DOH departs Kalaupapa, NPS would continue to have priority for occupying and using facilities in order to maintain park operations. Under all alternatives, visitor use levels would generally stay the same in the near term while the DOH continues its operations at Kalaupapa. In the long-term, facilities would no longer be occupied by patient residents and DOH staff, which would allow for possible visitor use of more facilities.

Alternative Management Strategies for Managing Use Levels

The enabling legislation for Kalaupapa NHP contains provisions to respect the special needs of the patients residing at Kalaupapa and provides direction for the number of visitors allowed to visit Kalaupapa in one day. For the purposes of this plan, a visitor is anyone who does not reside at Kalaupapa. One of the provisions states, “So long as the patient may direct, the Secretary shall not permit public visitation to the settlement in excess of one hundred persons in



The pali trail. NPS photo.

any one day” (16 USC 410jj-5). This cap on visitation has been in place since 1980 when the park was established, and the Patient Advisory Council directed that the limit be maintained. It must also be noted that visitation over the last eight years has averaged 25–29 people per day. As part of this GMP, user capacity is being considered within the context of the limit of 100 visitors per day as well as in the long-term when the numerical limit on visitation could change or be removed.

User capacity would be managed through one or more of the following management strategies: 1) limits on users through commercial use authorizations, concessions contracts, and contracts or agreements with organizations as described in alternatives B, C, and D in the “Number of Visitors” section; 2) entry pass system that manages access to the park and within the park in alternatives C and D in the “Orientation and Entry Pass” section, and 3) through indicators and standards for alternatives B, C, and D as described below. In addition to visitor limits, the NPS would also manage user capacity through the general management plan’s qualitative descriptions of desired resource conditions, visitor experience opportunities and general levels of development and management, which are in the management zones.

The following table outlines how user capacity would be managed under the four alternatives.



Planning team at Kauhakō Crater. NPS photo.

Table 3.17 User Capacity for Alternatives A, B, C, and D

	Alternative A	Alternative B	Alternative C	Alternative D
Near Term: Maximum Number of Visitors per Day	100 visitors per day managed by DOH	Same as alternative A	Same as alternative A	Same as alternative A
Near and Long-term:		Indicators and standards guide user capacity	Same as alternative B	Same as alternative B
Long-term: Number of Visitors per Day		100 visitors allowed per day through concessions contracts, agreements with organizations and partners, and commercial use authorizations.	Number of visitors per day is based on facility capacities. Entry pass system allows for monitoring visitor use and determining if changes are needed. Concessions contracts, agreements with organizations and partners, and/or commercial use authorizations set numerical limits on number of visitors.	Same as alternative C
Long-term: Number of Overnight Visitors		Number of overnight visitors does not exceed 100 visitors and is set by available bed space and limited through concessions contracts, agreements with organizations and partners, and/or commercial use authorizations.	Number of overnight visitors is set by available bed space and limited through concessions contracts, agreements with organizations and partners, and/or commercial use authorizations.	Same as alternative C

Indicators, Standards, Monitoring, and Management Strategies

In addition to these important directives, this GMP includes indicators and standards for Kalaupapa NHP. Indicators are measureable variables that would be monitored to track changes in resource conditions and visitor experiences. Standards are management decisions about the minimum acceptable condition for indicators. The indicators and standards help the NPS ensure that desired conditions are being attained, supporting the fulfillment of the park’s legislative and policy mandates. The GMP also identifies the types of management actions that would be taken to achieve desired conditions and related legislative and policy mandates. NPS staff would monitor indicators to determine if standards were being exceeded using techniques that could include monitoring of visible impacts to trails or resources as part of regular and volunteer patrols, establishing systematic resource assessments, and monitoring vandalism. NPS

staff could also review general information collected with respect to accidents, visitor complaints, and the functionality of the entry pass system.

As shown in Figure 3.8, user capacity decision-making is a form of adaptive management. With any use on public lands comes some level of impact that must be accepted. Therefore, it is the responsibility of the State of Hawai’i and the National Park Service, as the managers of Kalaupapa NHP, to decide what level of impact is acceptable and what actions are needed to keep impacts within acceptable limits. The monitoring component of this user capacity process helps test the effectiveness of management actions and provides a basis for informed adaptive management of public use. The indicators and standards included in this plan would generally not change in the future. However, as monitoring of Kalaupapa NHP’s conditions continues, managers may decide to modify, add, or delete indicators if better ways are found to measure important changes in resource and social conditions. The results of Kalaupapa NHP’s

monitoring efforts, related visitor use management actions, and any changes to Kalaupapa NHP’s indicators and standards would be available for public review. It should be noted that revisions to indicators and standards would potentially be subject to compliance with NEPA, NHPA, and other laws, regulations and policies.

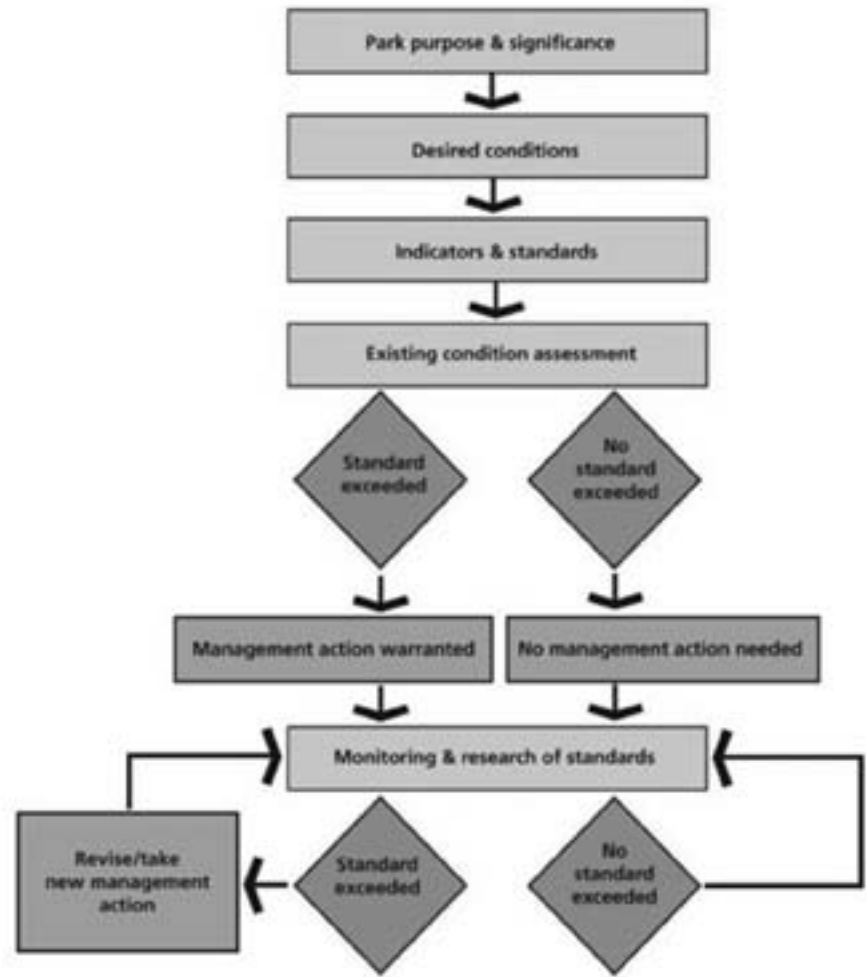


Figure 3.8 User Capacity Framework

The priority indicators for Kalaupapa NHP are associated with the following issues:

- Incidents of human-caused damage or alteration to archeological resources
- Maintenance work orders to repair historic structures damaged by visitors
- Human disturbance to special status species
- Condition of the pali trail
- Visitor crowding
- Unauthorized visitor access in limited areas

The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most significant, given the importance and vulnerability of the resource or visitor experience affected by visitor use. These indicators and standards help translate the broader qualitative descriptions of desired conditions into measurable conditions.



Recent view toward post office and court house. NPS photo.

Table 3.18 Indicators, Standards, Related Monitoring, and Potential Future Management Strategies

Indicator	Standard	Monitoring	Potential Management Actions
Indicator 1: Human-caused Damage to Archeological Resources			
Zones: Integrated Resource Management, Engagement, Wao Akua Zones			
Number of incidents of human-caused damage or alteration to archeological resources including digging, graffiti, rock art, rock stacking, moving resources, and looting	No incidents of damage or alteration reported in one year	Resource management monitoring projects and/or ranger patrols, complaints about human-caused damage	Education, signage, increase patrols, place natural barriers, reroute visitor access, selective closures, take appropriate law enforcement actions
Indicator 2: Visitor Damage to Historic Structures			
Zone: Engagement			
Number of maintenance work orders (beyond normal wear and tear) to repair historic structures damaged by visitors	No more than ten maintenance work orders per year	Monitoring number of maintenance work order to repair historic structures damaged by visitors and/or regular housing inspections	Education, signs, citations, require visitors to pay for repairs
Indicator 3: Human Disturbance to Special Status Species			
Zones: Integrated Resource Management, Engagement, Wao Akua Zones			
Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)	Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)	Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)	Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)
Indicator 4: Condition of Pali Trail			
Zone: Engagement Zone			
Condition class assessment or comparable categorical metric	Condition of trail has a condition rating of fair or above	Resource management monitoring projects and/or ranger patrols. Monitoring could include photo documentation at several locations on the trail.	Visitor information, signs, rehabilitate social trails, place natural barriers, repair trail using more resistant materials, coordinate with mule operation, limit number of mules and users
Indicator 5: Visitor Crowding			
Zones: Integrated Resource Management, Engagement, Wao Akua Zones			
Number of complaints relating to crowding and noise intrusions as logged by incident reports, staff or visitor complaints, and comment cards	No more than five total complaints about crowding or noise per month	Ranger patrols, tracking staff and visitor complaints	Education, signs, stagger visitation at high use areas, manage larger groups, set limits on number of people on tours and/or number of tours
Indicator 6: Unauthorized Visitor Access in Limited Areas			
Zones: Integrated Resource Management, Wao Akua, Operations Zones			
Number of incidents of unauthorized visitor access in limited areas	No more than 10 incidents per year for unauthorized visitor access in limited areas	Ranger patrols	Education, signs, improve orientation information, citations, reroute visitor access

Alternatives and Actions Dismissed from Further Consideration

The Council on Environmental Quality guidelines for implementing the National Environmental Policy Act (NEPA) requires federal agencies to analyze all “reasonable” alternatives that substantially meet the purpose and need for the proposed action. Under NEPA, an alternative may be eliminated from detailed study for the following reasons [40 CFR 1504.14 (a)]:

- “technical or economic infeasibility”: the inability to meet project objectives or resolve need for the project
- duplication of other less environmentally damaging alternatives
- conflicts with an up-to-date valid plan, statement of purpose and significance, or other policy; therefore would require a major change in that plan or policy to implement
- environmental impacts too great

The following alternatives or actions were considered during the alternatives development phase of the project, but were rejected because they met one or more of the above criteria.



Puahi Street in the Kalaupapa Settlement. The Quonset dormitory is on the right. NPS photo.

Termination of NPS Management of Kalaupapa NHP

The NPS leases land from Department of Hawaiian Home Lands and maintains cooperative agreements with Department of Land and Natural Resources, Department of Health, Department of Transportation, and religious institutions at Kalaupapa for the long-term protection and preservation of lands and resources within the boundary of the park. DHHL, DLNR, DOT, and DOH priorities and funding are directed at fulfilling their individual agency missions.

The legislative mandate for Kalaupapa NHP states that the Secretary of Interior shall administer the park. With the approval of the owner(s) and through cooperative agreements, the Secretary may expend federal funds to preserve resources, provide visitor services, and operate the park. The NPS is fulfilling this legislative mandate through its many agreements with partners and park operations since the park’s establishment in 1980.

During the planning process, the idea of terminating NPS management at Kalaupapa NHP surfaced in public and state agency partner meetings. It was suggested that NPS consider the idea and potential impacts and consequences of termination.

This action was dismissed from further consideration because impacts and consequences of terminating NPS management at Kalaupapa NHP would be large-scale, conflict with the purpose and significance of Kalaupapa NHP and current plans, and would contradict the legislative mandate for Kalaupapa NHP. In addition, the vast majority of comments received from patients, the public, and partners support NPS’s continued management role at Kalaupapa.

Camping

Camping is currently prohibited at Kalaupapa NHP. Visitation and overnight use is managed by DOH and guided by the patient’s council. Overnight use is limited to individuals sponsored by a patient resident, DOH staff, and/or NPS staff, and there is no overnight use available for the general public.

Camping at Kalaupapa was introduced as an idea in public scoping meetings held during the planning process. Some members of the public advocated for camping as a less expensive option for overnighting in the park compared to concessions run overnight lodging in the historic buildings. Some individuals desired options for camping in Kalaupapa Settlement, Waikolu Valley, and other locations throughout the park.

Camping was initially included in the draft alternatives in the form of group camping at designated locations within the settlement and managed through a permit system. Public comments received during the public review of the draft alternatives did not support the idea of camping. Many patients and other individuals feel that camping is a recreational activity that is incompatible with the purpose of the park which is focused on history, culture, and learning.

Establishing designated camping areas and building support facilities, including restrooms, would require new construction and introduce a new land use in the National Historic Landmark. Protecting and preserving the character of Kalaupapa NHP is a primary purpose of the park. In addition, federal funding is limited, and the planning team prioritized rehabilitation of historic buildings

over building new lodging or camping areas. For these reasons, camping was dismissed from further consideration.

New Access to Kalaupapa

In the 1860s, Kalaupapa was identified as the location to isolate Hansen’s disease patients because of its remoteness and treacherous access by sea and land. At the time, primary access to Kalaupapa was by sea, and there was a treacherous trail connecting Kalaupapa to the topside of Molokai. In 1889, the pali trail was established as the primary trail connection to topside, and the airport was constructed in the 1930s. Air access became the fastest and most used access to Kalaupapa beginning in the 1950s.



The pali trail. NPS photo.

Today, the limited access to Kalaupapa is a signature part of why Kalaupapa has been able to maintain is historic character and ambiance. It is difficult to travel to Kalaupapa, which inherently deters many people from attempting to visit the park. Travel to Kalaupapa is part of the experience.

During the planning process, new forms of access were proposed to provide easier access for patients, staff, visitors, and the transport of goods and materials to Kalaupapa. The new forms were a tram from topside Molokai and/or constructing a road from topside Molokai to the settlement. These two types of access were considered in the context of preservation of the historic character of Kalaupapa.

These actions were dismissed from further consideration because they would dramatically alter the historic character of Kalaupapa NHP and would introduce new uses and challenges to managing a small isolated community. They would also be costly to construct and maintain over the long-term.

Identification of the Environmentally Preferred Alternative

In accordance with NPS Director’s Order–12, Conservation Planning, Environmental Impact Analysis and Decision-making, the NPS is required to identify the “environmentally preferred alternative” in environmental documents. The environmentally preferred alternative is “the alternative that will promote the national environmental policy expressed in NEPA (Sec 101 (b))”.

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality. The criteria outlined in NEPA Sec. 101(b) considers:

- 1. Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2. Assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- 3. Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- 4. Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
- 5. Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- 6. Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources.

The Council on Environmental Quality states that the environmentally preferable alternative is “the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026–46 FR 18038).” According to NPS NEPA Handbook (DO-12), through identification of the environmentally preferred alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and

must clearly state through the decision-making process the values and policies used in reaching final decisions.

After the environmental consequences of the alternatives were analyzed, each alternative was evaluated to see how well the goals from NEPA section 101(b) listed above are met.

The following discussion summarizes the analysis and presents the rationale for the selection of the environmentally preferred alternative.

Alternative A is the no-action alternative and assumes that management, programming, facilities, staffing, and funding would generally continue at their current levels in the near term. The emphasis of the no-action alternative would be to protect the values of Kalaupapa NHP without substantially increasing park operations. Resource preservation and protection would continue to be a high priority for NPS management of Kalaupapa NHP.

Alternative A does not meet Criteria 1 because this alternative does not provide long-term guidance for the National Park Service to manage Kalaupapa after the Department of Health leaves Kalaupapa. Under alternative A, Criteria 2 and 3 would be met to a lesser degree than the other action alternatives because Kalaupapa would generally be managed at the current staffing and funding levels. This would limit the creation of new programs and park operations. The management of natural and cultural resources under alternative A would occur on an as-needed basis rather than providing active planned management of the area (Criteria 4). Alternative A does not fully meet Criteria 5 to the same extent as the action alternatives because it has fewer opportunities for visitor experiences and does not afford the same level of active resource and visitor use management. With limited planning and program funding, alternative A would not meet Criteria 6 as well as the other action alternatives which provide more opportunities for long-range planning and management.

Alternative B focuses on Kalaupapa’s special or sacred places and maintaining Kalaupapa’s spirit and character. Kalaupapa’s diverse resources would be managed to protect, maintain and enhance their integrity. Visitor use and experiences at Kalaupapa would be similar to existing conditions. The NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations.

This alternative would fulfill resource preservation goals (Criteria 1 and 4) and sustainability goals (Criteria 3 and 6) because visitation to Kalaupapa would be more limited than with other the alternatives. Much of the educational and interpretative information about Kalaupapa would be provided at offsite locations. Infrastructure and services needed for visitors would be minimal resulting in focused preservation of resources. Alternative B would meet Criteria 2 by providing safe, healthful, productive and esthetically and culturally pleasing surroundings. Alternative B meets Criteria 5 to a lesser degree than the other action alternatives in that visitation opportunities are the most restricted under this alternative.

Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa’s lands to ensure the long-term preservation of Kalaupapa’s history and ecological integrity. Kalaupapa’s diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. These diverse resources include the cultural landscapes associated with the Hansen’s disease era, the historic buildings, cemeteries, and the intangible resources including stories, customs, and living traditions. These diverse resources also include native Hawaiian archeological sites, the natural and dramatic geology of Kalaupapa, and the terrestrial and marine resources.

The emphasis on stewardship to ensure the long-term preservation of both the cultural and natural resources of Kalaupapa fulfills resource preservation



Wedgetail shearwater. NPS photo.

goals, Criteria 1 and 4. This alternative also emphasizes rehabilitation of historic buildings for administrative and visitor facilities fulfilling sustainability goals, Criteria 3 and 6. Alternative C meets visitor experience goals (Criteria 2 and 5) in that it allows for group and general public visitation. Most visitors would be engaged in stewardship and hands-on learning activities providing a quality experience while visiting Kalaupapa. **Taken as a whole, this alternative is the environmentally preferred alternative because it would best meet all six goals in the National Environmental Policy Act.**

Alternative D would focus on personal connections to Kalaupapa through visitation by the general public. Kalaupapa’s diverse resources would be managed to protect and maintain their integrity. Visitors would have the freedom to learn about Kalaupapa’s people and history through direct experience, exploration, and immersion in the historic setting.

This alternative fulfills the preservation goals (Criteria 1 and 4) because resources would be managed through stewardship opportunities with partners, visitors, and service groups. Sustainability Criteria 3 and 6 would be met to a lesser degree than the other action alternatives in that alternative D would allow for greater development of visitor and administrative facilities. Alternative D meets the visitor experience goals (Criteria 2 and 5) because it allows for a greater number of opportunities for the general public to visit Kalaupapa.



Marine biologists conducting intertidal algae survey. NPS photo.

Section 106 Summary

Section 106 of the National Historic Preservation Act (16 USC 470 e seq.) requires (1) that federal agencies consider the effect of their projects on historic properties eligible for the National Register of Historic Places, and (2) that agencies give the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office an opportunity to comment on projects. As required by Section 110 of the National Historic Preservation Act, federal land management agencies survey cultural resources on lands under their jurisdiction and evaluate these resources by applying criteria for the National Register of Historic Places. A number of surveys, inventories, and studies have been completed or are ongoing, and further resource evaluation and documentation will continue in Kalaupapa NHP.

For this GMP, the NPS is using the process and documentation required for the preparation of an EIS to comply with Section 106 of the National Historic Preservation Act in lieu of the procedures set forth in 36 CFR §§ 800.3 through 800.6. (36 CFR § 800.8 (3)(c)).

The NPS initiated Section 106 consultation with the State of Hawai’i Historic Preservation Division (SHPD), ACHP, and consulting parties in April 2009 during the public scoping period for this GMP/EIS. The NPS consulted with these entities again in 2011 during the public review of the draft alternatives.

For the purposes of Section 106, the entire Kalaupapa NHP is the area of potential effect. The NPS has identified historic properties within the area of potential effect that may be affected by the proposed undertaking. The NPS will continue to consult with the SHPD, ACHP, Native Hawaiian organizations, and other consulting parties related to the effects of undertakings on historic properties during the public review of the draft GMP/EIS. Additional Section 106

reviews would be necessary to implement site specific actions proposed in the GMP/EIS.

Undertakings that have the potential to effect resources eligible for or listed on the National Register of Historic Places such as preservation work on archeological sites, historic structures, and cultural landscape features will meet all procedural requirements specified in 36 CFR 800.



Siloama Church. NPS photo.

In the interim, no historic properties would be inalterably changed without consultation with the SHPD and ACHP, as appropriate.

Copies of this draft GMP/EIS have been distributed to the state of SHPD, ACHP, and interested parties for review and comment related to compliance with section 106 of the National Historic Preservation Act.

The preliminary determination of effect to cultural resources for the preferred alternative is “no adverse effect.” Additional Section 106 reviews may be necessary to implement site specific actions, including rehabilitation, in the preferred alternative to ensure consistency with the Secretary’s Standards for the Treatment of Historic Properties as stated in 36 CFR § 800.5 (3)(b). A final determination of effect to historic properties for the purposes of Section 106 will be included in the final GMP/EIS.

Summary of Impacts

Table 3.19 below provides a summary of the environmental impacts of implementing each alternative, organized by impact topic. See Chapter 5 for the complete analysis of environmental consequences.

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Cultural Resources				
Values, Traditions, and Practices of Traditionally Associated People (also referred to as ethnographic resources)	Beneficial Cumulative impacts would be minor to moderate long-term adverse and beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Archeological Resources	Beneficial Cumulative impacts would be minor to moderate long-term adverse and beneficial	Same as Alternative A	Same as Alternative A	Minor long-term adverse and beneficial Cumulative impacts would be minor to moderate long-term adverse and beneficial
Cultural Landscapes	Beneficial Cumulative impacts would be minor adverse long-term and beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Historic Structures	Minor to major long- term adverse Cumulative impacts would be beneficial and minor long-term adverse	Beneficial and minor to moderate long-term adverse Cumulative impacts would be beneficial and minor to moderate long-term adverse	Same as Alternative B	Same as Alternative B
Museum Collections	Beneficial Cumulative impacts would be beneficial	Beneficial with minor to moderate long-term adverse Cumulative impacts would be beneficial	Same as Alternative B	Same as Alternative A

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Natural Resources				
Air Quality	Minor short-term adverse Cumulative impacts would be negligible	Beneficial and negligible Cumulative impacts would be beneficial	Beneficial and negligible Cumulative impacts would be negligible and beneficial	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse and beneficial
Soundscapes	Beneficial Cumulative impacts would be minor to moderate short- and long-term adverse	Beneficial and minor long-term adverse Cumulative impacts would be negligible	Same as Alternative B	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse
Lightscapes	Beneficial Cumulative impacts would be negligible	Same as Alternative A	Same as Alternative A	Same as Alternative A
Water Resources and Hydrologic Processes	Beneficial and minor long-term adverse Cumulative impacts would be minor to major long-term adverse	Same as Alternative A	Beneficial and minor short- and long-term adverse Cumulative impacts would be minor long-term adverse	Same as Alternative C
Marine Resources—Coastal Reef, Habitats and Wildlife	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse and beneficial	Beneficial and minor long-term adverse Cumulative impacts would be beneficial and negligible	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse and beneficial	Beneficial and minor long-term adverse Cumulative impacts would be moderate long-term adverse and beneficial
Soils and Geologic Resources and Processes	Minor long-term adverse Cumulative impacts would be minor Long and short-term adverse	Beneficial Cumulative impacts would be minor Long- and short-term adverse	Same as Alternative B	Same as Alternative B
Biological Resources -Habitat, Wildlife, and Vegetation	Beneficial Cumulative impacts would be minor to moderate long-term adverse	Same as Alternative A	Same as Alternative A	Same as Alternative A

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Special Status Species	Minor to moderate short- and long-term adverse and beneficial Cumulative impacts would be minor to moderate short- and long-term adverse	Minor to moderate short- and long-term adverse and beneficial Cumulative impacts would be beneficial	Minor to same as Alternative B	Minor to same as Alternative B
Fishing, Hunting, and Gathering	Minor to major long-term adverse and beneficial Cumulative impacts would be minor long-term adverse and beneficial	Major long-term adverse and beneficial Cumulative impacts would be beneficial and negligible	Negligible to minor long-term adverse and beneficial Cumulative impacts would be minor long-term adverse and beneficial	Negligible to minor long-term adverse and beneficial Cumulative impacts would be moderate long-term adverse and beneficial
Wild and Scenic Rivers	Beneficial Cumulative impacts would be negligible to moderate long-term adverse	Same as Alternative A	Same as Alternative A	Same as Alternative A
Scenic Resources	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Interpretation and Education, Visitor Use				
Interpretation and Education	Beneficial and minor long-term adverse Cumulative impacts would be minor to moderate long-term adverse	Beneficial Cumulative impacts would be beneficial	Same as Alternative B	Same as Alternative B
Visitor Use and Experience				
Visitor Use and Experience	Minor to major long-term adverse Cumulative impacts would be minor to major long-term adverse	Beneficial and minor to moderate long-term adverse Cumulative impacts would be beneficial	Moderate to major long-term adverse and beneficial Cumulative impacts would be beneficial	Beneficial Cumulative impacts would be beneficial
Commercial Visitor Services	Moderate to major long-term adverse Cumulative impacts would be minor to major long-term adverse	Beneficial Cumulative impacts would be minor to major long-term adverse and beneficial	Same as Alternative B	Same as Alternative B

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Sustainable Practices and Response to Climate Change				
Sustainable Practices and Response to Climate Change	Beneficial Cumulative impacts would be negligible and beneficial	Beneficial Cumulative impacts would be beneficial	Same as Alternative B	Same as Alternative B
Access and Transportation Facilities				
Land Access and Pali Trail	Negligible to moderate long-term adverse Cumulative impacts would be negligible to minor long-term and adverse	Negligible to moderate long-term adverse to minor beneficial Cumulative impacts would be negligible to minor long-term adverse	Minor to moderate long-term beneficial Cumulative impacts would be negligible to minor long-term adverse	Minor to moderate long-term beneficial Cumulative impacts would be negligible to minor long-term adverse
Air Access and Kalaupapa Airport	Negligible to minor beneficial and adverse Cumulative impacts would be negligible to minor adverse and long-term	Negligible to minor beneficial and adverse Cumulative impacts would be negligible to minor long-term adverse	Beneficial and long-term negligible to minor and adverse Cumulative impacts would be negligible to minor long-term adverse	Beneficial and long-term negligible to minor and adverse Cumulative impacts would be negligible to minor long-term adverse
Sea Access	Negligible Cumulative impacts would be negligible	Negligible Cumulative impacts would be negligible	Negligible Cumulative impacts would be negligible	Negligible Cumulative impacts would be negligible
Roads and Trails	Negligible to minor long-term adverse Cumulative impacts would be negligible to minor long-term beneficial and adverse	Beneficial Cumulative impacts would be negligible to minor long-term beneficial and adverse	Beneficial Cumulative impacts would be negligible to minor long-term beneficial and adverse	Beneficial Cumulative impacts would be negligible to minor long-term beneficial and adverse
Operations	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Land Use	Negligible to beneficial Cumulative impacts would be negligible	Same as Alternative A	Same as Alternative A	Same as Alternative A
Safety and Security	Beneficial Cumulative impacts would be minor long-term adverse	Same as Alternative A	Same as Alternative A	Same as Alternative A

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Socioeconomics				
Impacts to demographics	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Economic Impacts to Influence Area	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Impacts to Social Characteristics	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A



Dramatic sunrise over the Kalaupapa peninsula. Photo by Jeffrey Mallin.



Affected Environment 4



St. Philomena Church. Photo courtesy of Hawai'i State Archives.

The purpose of this chapter is to describe the physical, biological, cultural, and social environments of Kalaupapa National Historical Park (NHP), including human uses that could be affected from implementing any of the alternatives described in the preceding chapter. This chapter contains topics that were identified as important issues by the public and the agencies during scoping. It also contains additional background data relevant to both readers and NPS managers.

Description of Project Area

Detailed information related to management authorities, jurisdictions, land-ownership, designations, special mandates, and cooperative agreements can be found in the foundation document in Chapter 2.



K'oa (fishing shrine) at Wai'ale'ia Valley, Molokai. Photo by Stokes, ca. 1909. Photo courtesy of Bishop Museum.

Cultural Environment

NPS Management Policies 2006 categorizes cultural resources as archeological resources, cultural landscapes, historic structures, museum objects, and ethnographic resources. Kalaupapa NHP is rich in all categories of cultural resources and is a designated national historic landmark. More information about the NHL designation is located in Chapter 2.

Values, Traditions, and Practices of Traditionally Associated People (also referred to as ethnographic resources)

Many layers of human history can be found on Kalaupapa peninsula, and these layers are expressed in complex cultural landscapes with associated ethnographic resources. These include the landscapes and resources associated with the native Hawaiian community who inhabited the peninsula prior to 1866; those of displaced Hawaiians, who initially relocated to other areas of the peninsula until their ultimate departure in the late 1890s. The central ethnographic resources are those associated with the patient population both at Kalawao and Kalaupapa from 1866–1969.

Ethnographic resources are deeply woven into the fabric of Kalaupapa's culture and history; in traditional Hawaiian stories and ancient sites; in the peninsula's history as a leprosy colony; in the stories patients tell; in the many historical buildings, churches, and cemeteries; and in the scenic and cultural landscapes. These aspects all contribute to Kalaupapa's significance as a place that is connected to people—both past and present—a place with a compelling story to tell to the world.

Traditionally Associated People

NPS defines traditionally associated people as a group that has been associated with the park for at least two generations (40 years) and who has held an interest in the resources of the park before the park's establishment. Traditionally associated people are typically different from other park visitors in that they ascribe value and significance to ethnographic resources—including places

and material culture— that are connected to their history, development, and existence as a community.

Due to the unique history of the park and the age of the current patient population, NPS recognizes that the patient residents are the park’s most valuable resource: their stories, knowledge, and personal experience of the cultural and historical landscape are important to document while they are still alive. In 2009 the park started a formal ethnography program to gather information about resources and historic properties, and to conduct individual and group consultation to aid in park planning and management. The patients’ stories will be a valuable resource for education, interpretation, and research and will help direct the long-term future of Kalaupapa. Currently NPS consults with the patient community in general, as well as with the Patient Advisory Council, a council of seven patients who represent the broader patient community.

Description of the Patient Community at Kalaupapa

As of March 2013, there are fewer than 20 patients on the Kalaupapa registry, ranging in age from 72 to 90. (The registry does not include patients who were released prior to 1969, or who left Kalaupapa after 1969, when the segregation law was lifted.) The current patient community was admitted to Kalaupapa, many of them as children, between 1936 and 1969.

All patients on the registry are assigned a residence in the settlement, although several patients live on other islands for most of the year and only stay in their homes at Kalaupapa occasionally. Due to health reasons, several patients live at Hale Mōhalu, the Hansen’s disease ward at Leahi Hospital in Honolulu, and they rarely visit Kalaupapa. Most of the patients are retired, though some continue to work part-time. Almost all of the patients are mobile and most are able to drive around the settlement. Statistically there have traditionally been more male than female patients. The gender distribution has shifted in recent years, however, and now female community members outnumber male.

The ethnic composition of the patient population today is predominantly Pacific Islander and Asian, including Hawaiian, Sāmoan, Portuguese, Filipino, or Japanese descent.

The religious make-up of the patient community follows the historic pattern, with the Catholic Church receiving the largest membership, followed by the Kalawina (Congregationalists) and the Mormon Church. Though there was a small Buddhist community begun in the 1920s, there are no remaining Buddhists at Kalaupapa today. The Catholic Church and the Kalawina Church continue to hold weekly services at Kalaupapa and monthly services at Kalawao.

Resource Use by the Patient Community

When the patients were young they were taught to fish and gather resources by the older patients in the community: a pattern that repeated itself at Kalawao and Kalaupapa. They explored the mountain valleys and streams of Waihānau, Wai’ale’ia, and Waikolu for sustenance and recreation. From Waikolu Stream the patients gathered hīhīwai (a freshwater limpet), ‘o’opu (a native Hawaiian fish), prawns, and watercress. The mountain valleys provided seasonal fruits like mango, guava, and mountain apples. From Waikolu Valley patients gathered yellow and white ginger and the fragrant maile vine that they would weave into lei to wear to dances at Paschoal Social Hall, at lū’au, and at other festive occasions. From the ocean, all kinds of fish were

caught along with crab, lobster, he’e (squid), and ‘opihi (saltwater limpet). Other delicacies collected from the sea were edible limu (seaweeds), shellfish, and wana and hā’uke’uke (varieties of sea urchin). The rocky depressions and shallow pools along the northern coast of the peninsula yielded salt during the hot summer months. The ocean was their bread basket and the foods harvested supplemented meals at the group homes: for the predominantly Hawaiian or part-Hawaiian patients, fish and other ocean delicacies were ties to their cultural identity.

Other areas of the peninsula provided plants, mostly nonnatives used for food, cultural purposes, medicine, and healing. The kīkānia is an example of a special plant associated with the Kalawao area and the patient community. It is a thorny nonnative with striking orange-colored fruit that once grew wild in the open spaces at Kalawao. It is no longer as abundant today, but scattered patches can still be seen across the road from Siloama Church. Strung into lei, the orange kīkānia has become symbolic of Kalaupapa. It is rare these days to see a kīkānia lei at festive occasions outside of the settlement.

Hunting with guns was a later tradition. It was illegal for patients to own guns until the early 1950s, and kōkua did not hunt until the mid-1990s. In earlier years, patients hunted pigs and goats with dogs or by catching the young animals. Deer arrived in the park in 1984 and are hunted by kōkua today. Patients no longer hunt but kōkua share their excess meat with those who request it. The tradition of giving fish, salt, and other resources to widows, the elderly, and others in need is rooted in Hawaiian culture. This tradition continues in the patient culture, where both patients and kōkua share fish with patients who can no longer fish or who no longer have access to fish. Especially now, when most patients are unable to fish due to health reasons or age, they depend on kōkua to supply them with the food resources that represent their cultural values.

Current resource use by the patients is limited by their age and physical ability to access gathering sites. The one gathering practice that is still accessible to most patients is the collection of salt along the rocky northern coast. None of the patients fish or hunt any longer.

Pre-settlement Native Hawaiian Community

The displacement of the pre-settlement Hawaiian community between 1865 and 1895 contributed to a loss of ancestral connections to the land and a loss of cultural knowledge and traditions relating to the landscape. Hawai’i did not have a written language until 1829, when missionaries formalized an alphabet.

Much of the history of the peninsula was therefore preserved in stories, and the disruption of the oral tradition by the removal of the native Hawaiian community resulted in a fragmented history with incomplete information about earlier cultural resources and significant sites.

The NPS is learning more about the native Hawaiians who lived on the peninsula prior to 1866. The NPS wishes to identify descendants of the displaced Hawaiian community who once were associated with the park’s cultural and natural resources. In the future, the NPS hopes to consult with these descendants about park resources and management.

Other Associated Groups

Other groups associated with the park include state and federal kōkua (employees), who work and live on the peninsula to support the patient community. Many of the kōkua have a connection to topside Molokai: they were born and raised topside or have family there, and they travel back and forth on weekends when not in the settlement for work.

Also significant to the park are families with loved ones buried at Kalaupapa, as well as the many families and friends of both patients and kōkua who have visited Kalaupapa over the years, and who have an established relationship with the Kalaupapa community.

Previous Ethnographic and Oral History Research

While many historical accounts depict early life in the Kalawao and Kalaupapa Settlements, limited ethnographic research or oral history work was conducted in the 19th or early 20th centuries. This was likely due to the misperceptions, social stigma, and fear surrounding Hansen’s disease. Most early research efforts were focused on learning more about the disease and its transmission and on finding a cure.



Ben Pea and David Kupele sitting on the porch of Bay View Home at Kalaupapa. Photo by A. Law.



Kalaupapa Arts and Crafts Store. NPS photo.



Injection, X-Ray, and Dentist's Office, 1930s. Photo by Franklin Mark.

Table 4.1 Summary of known ethnographic and oral history research to date

Time period	Oral Historian	Description of Activities
Late 1930s	Ernie Pyle	Pyle visited Kalaupapa and wrote about his observations. Approximately 13 articles were published in the Honolulu Advertiser between December 27, 1937 and January 8, 1938. An adaptation of these articles was also published in Home Country by Scripps-Howard.
1967	Ted Gugelyk	Demographic social science research project as part of master's thesis in Sociology. Published in 1970 in the Journal of Health and Social Behavior (Gugelyk and Bloombaum 1979). Gugelyk and Dr. Bloombaum interviewed 90 of the 128 in the mid-1970s. In 1979, Gugelyk and Bloombaum published <i>The Separating Sickness, Ma'i Ho'oka'awale</i> .
1970s	'A'ala Roy, Dr. Ishmael Stagner and the Mormon Church	Conducted interviews with patients in both Hawaiian and in English and collected historic photos of Kalaupapa. As part of the Oral History Program at Brigham Young University-Hawai'i, four interviews were recorded with Kalaupapa patients in 1979 and 2004 to document church history in Hawai'i.
1980s	Anwei Skinsnes Law	The interviews comprise three volumes of transcribed materials and were also video-taped. Most of the interviews were conducted with patient residents, but recordings also include interviews with staff, as well as other individuals associated with the settlement, and officials who were instrumental in bringing the NPS to Kalaupapa.
1993	Valerie Monson	Reporter for <i>The Maui News</i> , recorded interviews in detailed field notes, which produced more than 120 stories.
2000	Jennifer Cerny	Master's thesis in cultural heritage studies. Work identified plants in the cultural landscape and described the value ascribed to them by patients in utilitarian, symbolic, and aesthetic terms.
2000–05	Langlas 2006; Langlas, McGuire, and Juvik 2008; Juvik 2007	The main objectives of the study were to document the Kalaupapa community as it existed then (2000–05) and to determine how the community had evolved since 1969, when the segregation law was lifted and patients were free to come and go from the peninsula.
2010–present	NPS	Ongoing ethnography collection, most of which is related to NPS projects, undertakings and management.
2010–present	Daviana McGregor	Oral histories presently in progress, focusing on lineal descendants of Kalaupapa kama'āina.

Archeological Resources

The Kalaupapa region is composed of the peninsula of Kalaupapa (also called Makanalua peninsula), the land shelf of Nihoa to the east, and Waikolu Valley to the west—is a layered complex of archeological sites, diverse in type and representative of the full historical continuum from pre-contact to the present day. Due to its physical isolation and lack of modern development on the peninsula, it is one of the most intact archeological complexes in Hawai'i.

In 1976, several individual archeological sites and structures within Kalawao County were identified in the National Historic Landmark and the National Register of Historic Places. The archeological sites have also been recognized in the enabling legislation for Kalaupapa NHP.

Of the 8,719 acres of land in Kalaupapa NHP, 669 acres have been surveyed for archeological resources. To date, researchers have documented 567 archeological sites. Of the documented sites, all are eligible or listed on the National Register of Historic Places. Resource types include both pre-contact and historic house sites and complexes; agricultural sites such as lo'i (pond fields) and kula (dryland) field systems; and ritual sites such as ko'a (shrines dedicated to fishing), heiau (temples), and possibly church remains.

Native Hawaiians lived a rich life on the peninsula before and during the establishment of the leprosy settlement in 1866. Archeological discoveries from Kalaupapa dating prior to 1866 are described below according to a chronology for human occupation of the island developed by anthropological archeologist Mark D. McCoy (2007).

Foundation Period: AD 800–1200

Four dateable samples from Molokai correspond to the Foundation Period, though their dates are contested. Two of the samples are from the Kalaupapa peninsula, and both come from non-site contexts. One is cave charcoal of unknown taxa and the other is marine shell. It is unclear whether they truly reflect human activity during the Foundation Period: their dates can be rejected under “strict chronometric hygiene standards” (Spriggs and Anderson 1993), yet other evidence from the paleoenvironmental record in the Kalaupapa region supports human occupation in this time frame (McCoy 2007).

Early Expansion Period: 1200–1400

Two agricultural features at Kalaupapa have been dated to this period. A charcoal sample from a terraced lo'i in Waikolu Valley, revealed in an exposed stratigraphic sequence, was found just below the pond field deposits and is believed to be the product of human efforts to clear the land before cultivation. Kirch's survey work on the peninsula in 2000 uncovered evidence of small-scale sweet potato cultivation in dryland (kula) fields during this early expansion period (Kirch 2002).

Late Expansion Period: 1400–1650

A robust dataset from Kalaupapa indicates that Hawaiians intensified their development of the region's kula fields for agriculture from AD 1450 to AD 1550. They delineated the fields— which cover approximately six miles at Kalaupapa today and are collectively known as the Kalaupapa Field System—with low, single-course, loosely stacked rock walls that ran parallel to prevailing trade winds. Separate research by McCoy indicates that from AD 1440 to AD 1650, inhabitants were also engaged in establishing heiau as ritual sites on the peninsula (McCoy 2006).

Proto-historic Period: 1650–1795

A battle on the Kalaupapa peninsula, recorded through mo'olelo, is thought to have occurred in the 17th century at the dawn of the proto-historic period (Summers 1971). The windward Ko'olau district, which includes Kalaupapa, sought access to fishing grounds on the leeward Kona side during winter months to avoid the treacherous seasonal north shore swells. A battle ensued between the moku (chiefs) of the two districts. The style and form of the Kalaupapa site known as Makapulapai suggest that it is a burial complex for the remains of the Ko'olau warriors who fought in this battle (Manning and Neller n.d. and McCoy 2005). Such a burial monument is rare in the Hawaiian Islands, but one is also found at Keahou on the island of Hawai'i.

The Kalaupapa region provides 39 of Molokai's 89 dateable samples from the proto-historic period. Scientific data, primarily from McCoy's research, support the view that island societies were dynamic and in great political flux during this time (McCoy 2006). At Kalaupapa, archeologists note a density of small shelters at the peninsula's north end, in contrast to the blend of site sizes and types found on most of the peninsula. This suggests it was “a zone clearly

used for agriculture but never permanently occupied,” and is a pattern consistent with chiefly authority over the daily life of makaʻāinana (McCoy 2007).

Early Historic Era: 1795–1866

The historic period begins at a time of two major changes in Hawaiʻi: the political unification of the islands under Kamehameha I and the first European contact. The early historic era in Kalaupapa begins at the turn of the 19th century with these changes and ends with the 1866 establishment of the leprosy settlement.

Our understanding of this era comes largely from written records, specifically letters and logs left by missionaries and explorers that describe the Kalaupapa landscape and activities of the kamaʻāina (inhabitants). Records from the Great Māhele—a land tenure law that for the first time required people to claim and describe their lands in writing—shed light on the lives of the makaʻāinana and other facets of Hawaiian society in the middle of the century (1846–53).

Archeological investigations of this era at Kalau-papa are limited. One describes a brief midcen-tury intensification of the Kalaupapa field system in order to grow sweet potatoes and other foods for shipment to California gold miners (Athens 1989; Ladefoged 1990; Goodwin 1994).

Transitional Era: 1866–95

This era encompasses three decades of social transition at Kalaupapa, from 1866, when the first Hansen’s disease patients arrived, to 1895, when the Hawaiian monarchy forced the last native occupants to depart. Archeologists have not targeted this brief era for research. However, preliminary research by Viernes-Stein for the NPS (in preparation) indicates that the kamaʻāina did not see a government mandate as sufficient reason to break their ties to the land.

The earliest Hansen’s disease exiles were taken in by the kamaʻāina of the region until their homes grew full and their resources scant (Remy 1893). It is

known that while some native residents left upon establishment of the “leper settlement” in 1866, the last ones departed only when the Hawaiian Kingdom made its final land exchange offer in 1895. Kalaupapa kamaʻāina received lands in the Kainalu and Waialua areas of Molokai.

Kalawao Settlement: 1866–1900s

Kalawao was the initial site of the leprosy settlement in 1866. Though eclipsed by Kalaupapa Settlement in the early 1900s, Kalawao remained occupied to some extent until its Baldwin Home for Boys closed in 1932. Historical records offer plentiful information about Kalawao during this period. Recent archeological investigations focused on household sites at Kalawao provide details of daily life, including bottle glass worked to serve as a blade tool (Flexner 2010). Park archeologists continue to find a noteworthy density of such worked glass.

Kalaupapa Settlement: 1888–present

In 1888, the Bishop Home for Girls was estab-lished at Kalaupapa, “named after its benefac-tor, Charles Reed Bishop, a wealthy Protestant Honolulu banker, capitalist, philanthropist, and widower of Bernice Pauahi Bishop, last of the Kamehamehas” (Greene 1985: 180). The Bishop Home at Kalaupapa provided a leeward setting with drier weather and easier access to the boat

landing than Kalawao. Shortly thereafter, patients and kōkua began to migrate from Kalawao to Kalaupapa. Residents built new structures at Kalaupapa out of materials taken from abandoned structures at Kalawao. Kalaupapa quickly became the peninsula’s primary place of residence and activity, and so it remains today.

Though still a living community, Kalaupapa is also appropriate ground for archeological research. An archeological survey that focused in part on Kalau-papa identified remnants of house sites (Somers 1985). Archeological mitigation measures in the settlement area have also revealed subsurface archeological sites, sometimes in conjunction with buildings still in active use. Archeol-

ogy of the present has not been engaged in any concentrated effort thus far at Kalaupapa.

Cultural Landscape Resources

Kalaupapa NHP contains two cultural landscapes managed by the NPS. These resources are already part of the national historic landmark district. Each has distinct periods of significance, physical characteristics, and features that define its significance and value. These landscapes include: 1) the Kalaupapa and Kalawao settle-ments for which the park was established and 2) the Molokai Light Station.

Kalaupapa and Kalawao Settlements

Kalaupapa and Kalawao settlements are managed as a single cultural landscape with both designed and vernacular characteristics. The landscape is historically significant because it retains many of the physical resources and land-scape characteristics associated with the estab-lishment, development, and operation of the settlement for the treatment of individuals with Hansen’s disease between 1866 and 1969. The historical context and significance of the cultural landscape is documented in the National His-toric Landmark nomination. Cultural landscape characteristics and features that remain today and relate to that significance include the natural systems and features that historically provided the frame-work for establishment and development of the settlement; the overall spatial organization of the settlement, which reflects both historic vernacular elements and historic design components; circulation systems such as roads and trails that reflect historic patterns of movement across the peninsula and within the settlement; buildings and structures (addressed under historic structures); the arrangement of buildings and structures to create residential neighborhoods and functional areas; and small-scale features that add character and meaning to the landscape.

Natural Systems and Features

The physiographic features and natural systems that historically influenced initial establishment of the settlement at Kalawao and the relocation to Kalau-papa after 1900 are still prevalent today. The primary natural landform that spatially defines the cultural landscape of Kalaupapa is the large, relatively level peninsula on the north side of Molokai. The peninsula is bounded by the ocean and a rocky shoreline and is isolated by towering cliffs rising 2,000 feet on the south side of the peninsula. These cliffs continue to invoke feelings of drama and awe and contribute to the sense of profound isolation that dominates the settlement.

Other natural features that were important in the lives of the patients at Kalaupapa continue to influence the physical character of the land-scape and carry strong cultural associations for people today. These features include the range of pre-contact remnants and structures located throughout the entire peninsula; Kauhakō Crater and the associated lake, lava tubes, and caves; marine areas for fishing and salt collection; the navigable shoreline; Waikolu Stream as a source of water; the upper valleys that historically pro-vided materials and natural resources for build-ing and sustaining a settlement; natural sounds; dark night skies; and the open areas that were used for agricultural production.

Spatial Organization

Kalawao Settlement

The initial settlement landscape developed at Kalawao was vernacular in character. With no facilities, many exiles adaptively sought shelter in existing structures in the vicinity. During this period, the landscape around Kalawao was generally open in character, reflecting long periods of habitation, agricultural use, and grazing. As the early Hansen’s disease settlement took form and new facilities were constructed, the settlement concentrated new development along the road that provided access to the other side of the peninsula.



Heiau at Makanalua, 1909. Photo by Stokes, courtesy of Bishop Historical Society.



Farming on the Kalaupapa peninsula, 1930s. Photo by Franklin Mark.

The arrival of Saint Damien in 1873 marked the beginning of major social and physical improvements in the settlement. By the late 1880s, Kalawao had grown to include approximately 430 buildings, including residential cottages, a store, the Federal Hospital, the Baldwin Home for Boys, administrative offices, and churches, as well as a water system, a relatively large garden, and groves of fruit trees. However, as efforts increased to isolate the patients, improve the quality of patient care, and increase the number of patients treated, the Kingdom of Hawai‘i instituted measures to relocate the settlement from Kalawao on the windward side of the peninsula to Kalaupapa on the leeward side. Patient relocation and concurrent construction occurred in phases from the late 1890s until the 1930s: during this period, most of the existing Kalawao buildings were dismantled and the materials used for construction in Kalaupapa.

Around 1930, the Baldwin Home for Boys completely relocated from Kalawao to their new complex in Kalaupapa. Eventually the only buildings to remain in Kalawao were St. Philomena Church and its rectory and Siloama Church. Today the spatial organization at Kalawao is defined by Damien Road, the two churches and associated yard areas, gravesites, and the remnant structures asso-



Left: Aerial view of Kalaupapa, 1941. Photo by Jerome Baker, courtesy of Bishop Historical Society. Right: Aerial view of Kalaupapa today. NPS photo.

ciated with two major historic complexes: the Federal Hospital and the Baldwin Home for Boys.

Kalaupapa Settlement

Historically, the spatial organization at Kalaupapa Settlement was influenced by land use activities associated with patient care and the institutional requirements of the state government, which administered the facility and provided services to the community. The initial spatial organization of the settlement as developed and modified over the years is the most dominant historical pattern remaining in the cultural landscape we experience today.

As Kalaupapa Settlement grew, the underlying pattern of development followed the orthogonal grid common to many towns, with streets running roughly perpendicular to each other. Single buildings, as well as complexes of buildings—such as those of McVeigh and Bay View group homes—were arranged around the grid. Buildings were sited perpendicular to the street, resulting in an orderly appearance typical of any American small town. The exception to this pattern is the Bishop Home, which has a 45-degree orientation to the grid, and the new Baldwin Home, which was located away from the grid to the south of the settle-



Right: Aerial view of Kalaupapa today. NPS photo.

ment. There the large dormitory building was oriented with its long axis parallel to the slope of the site.

Within the settlement, land uses were clustered to consolidate functions and services for the patients. For example, many of the industrial buildings and activities were located near the boat landing; these included warehouses, a power plant, laundry, carpenter shop, oil house, and other basic services for operation and maintenance. The character of the industrial area is distinct from the rest of the settlement: the buildings are laid out in the same pattern, but without the open spaces between buildings that are typical of the settlement. Although the buildings are set back from the major streets, the space between them is minimally adequate for vehicle and equipment access.

A core area of services for the community was not far from this industrial area and featured a store, provision room, post office, court room, poi shop, and visitors’ quarters for family members and friends. The Catholic Church and the Protestant Church were centrally located. Low rock walls enclosed the church yards, and the grounds included ornamental plantings. Large areas along the shoreline on the north end of the settlement were used for gravesites and cemeteries.

Many of the individual cottages and patient residences in Kalaupapa were located in the eastern portion of the settlement, and most were oriented north-south along the streets. The exception to this was the row of cottages along Damien Road, which ran east-west to Kalawao. Many of the cottages had enclosed yards, and the majority also had a small garden space, either wrapping around the porch and the foundation of the house, or sited directly adjacent to the house. Several doctors, nurses, and staff responsible for the care of the patients resided in one of the five main residential complexes, known as Staff Row, located directly south of the McVeigh Home.

In addition to the individual cottages, a number of distinct residential clusters within the settlement were established to care for the patients and members of the community: the Bishop House, the earliest established home, was created to care for young girls and women sent to the settlement; the Bay View Home, established for both men and women, was devoted to the care of the old, the infirm, and the blind; the Baldwin Home (removed in the 1950s) focused on the care of young boys; and the McVeigh Home, built in 1910, was first established as the Home for White Foreigners but by July 1914 other people of different

nationalities lived there. It was destroyed by fire and rebuilt in the 1930s. These building clusters were largely self-contained and were major structuring components in the settlement landscape.

Today, despite a number of changes such as the loss of historical plantings, the removal of historical rock walls, and the general loss of individual structures and outbuildings, Kalaupapa Settlement still exhibits historical spatial organization and broad patterns of development. The loss of plantings and structures throughout the settlement has been incremental, but has resulted in an overall loss of physical complexity within the settlement and the creation of more open space. In spite of these changes, however, many of the key elements that define the spatial organization of the settlement persist. For example, the physical landforms that delineate and isolate the peninsula remain, and many of the extant early roads and formal walkways within the settlement continue to provide a framework for circulation. Individual cottages still stand along the narrow roads surrounding state facilities and community services, like the store, gas station, post office, and library. Four of the five primary housing clusters also remain—the McVeigh Home, the Bishop Home, Staff Row, and the Bay View Home—although they have been altered to varying degrees.

McVeigh Home

Located in the northeastern portion of Kalaupapa Settlement, the McVeigh Home complex historically consisted of a central dining hall, a pavilion, large dormitories for men and women, and 19 individual cottages situated along narrow driveways, extending east and west from the primary access road. This road ran south to staff quarters and north to the airstrip. Within this area, the landscape reflected a hierarchy of spaces and uses from very private, personal use in the cottages, to communal facilities (such as a dining and recreation room pavilion) in the center of the complex. Formal vegetation patterns helped distinguish communal areas. Private cottages were often more informal and individualistic with shade trees, fruit trees, and various types of foundation plantings extending into the yard. The McVeigh Home complex retains virtually all of its original spatial organization, including the locations of structures, circulation systems, and even land use patterns from the 1929 reconstruction period that followed the 1928 fire.

Bishop Home

Centrally located in the settlement, the Bishop Home was one of the most distinctively landscaped residential clusters in Kalaupapa. Historically the Bishop

Home contained as many as 19 buildings, including a chapel and convent, an infirmary, several cottages, a dining room and kitchen, a dormitory, a heating plant, and a laundry. Most of the structures were clustered on a high point in the center of the grounds. The entire lot was enclosed on all four sides by a 4-foot dry-laid rock wall, and within the property the complex was delineated by a wood fence. A large wooded area extended between the rock wall and fence on the northeast side of the property. Primary access consisted of a stone gate and formal tree-lined drive, bordered by rock walls, which began at the corner of School and Puahi streets and culminated in a loop with a flag pole in the center. An inner cluster of structures, including the convent and the chapel, was encircled by another driveway. Pedestrian circulation within this cluster was also formal, following straight lines and right angles. Ornamental vegetation bordered the pathways, roads, and buildings, lending character and definition to the landscape. Monuments to Saint Marianne and Saint Damien were located along Puahi Street on the Bishop Home grounds. Today, the Bishop Home, although missing many of the original structures, retains the original circulation system, the interior focus on the chapel and convent, and large portions of the outer wall surrounding the entire lot.

Bay View Home

The Bay View Home complex historically included ten primary structures: the Manager’s Cottage, four dormitories, a dining room, a kitchen, a heating plant, a chapel, and a laundry. All of these structures were arranged in a formal symmetrical plan, on a relatively broad expanse of grass. The dispensary was located just north of this complex across Damien Road. With the exception of the dispensary, structures were oriented toward the center of the complex and were built largely in the Hawaiian plantation style, adapted to institutional needs. The entire complex was fenced on three sides to the shoreline, limiting access. Walkways within the complex were paved and laid out in formal and direct routes linking buildings, and a paved road provided access along the west side of the complex, leading to the main dining hall. In the very early days of the Bay View Home, vegetation was formal yet sparse, with individual trees and hedges lining the edges of paths and roadways.

Baldwin Home

Located at the base of the pali trail on the south edge of the settlement, the new Baldwin Home for Boys historically included a large dormitory, a recreation room, cottages, a chapel, and a rather large grove of papaya and banana trees. The Baldwin Home was shut down in 1950 and the structures were removed

the following year. In some cases these structures were re-located elsewhere within the settlement (such as the residence now located on the southeastern corner of Puahi Street and Damien Road).

Circulation

General access to Kalaupapa peninsula and historic patterns of circulation within Kalaupapa Settlement remain largely intact and in use today. Damien Road remains the primary route between Kalawao and Kalaupapa Settlements. At Kalawao, many of the historic circulation routes and features were abandoned or actively removed after the settlement moved to Kalaupapa. In some cases, roads that were left in place remain as fragments or remnants obscured by encroaching and invasive vegetation. In areas where use continued, circulation remains largely intact. This includes pedestrian circulation in the form of paved walkways at St. Philomena and Siloama churches.

Circulation within Kalaupapa Settlement is structured by an irregular road grid that provides access to all developed areas. This pattern has been in place throughout the expansion of the settlement. A decade-long improvement program began in 1935 to standardize Kalaupapa’s system of roads. The project included the repaving of streets, driveways, parking areas, and a portion of the road to the airport: much of this system remains today as the primary circulation network.

Major extant circulation systems and features with historical significance include the pali trail; Puahi Street, which links the trail to the settlement; the Kalaupapa airstrip; Damien Road; Kamehameha Street, which connects the airport and lighthouse to the settlement; the eastern coastal road; and the network of roads, driveways, and sidewalks within Kalaupapa Settlement. Site-specific circulation systems related to neighborhoods and building clusters also remain, such as the roads and walkways at the Bay View Home, Bishop Home, McVeigh complex, and Staff Row.

Vegetation

Historically, vegetation in Kalawao and Kalaupapa Settlements served a variety of purposes. Certain plants were cultivated for cultural reasons, including crops that held ethnic value or those grown for food and/or raw materials. Hedges were established for privacy and “independence” by patients healthy enough to live autonomously; trees and shrubs sheltered homes from seasonal winds

and created viable microclimates; and the government agencies administrating the settlement believed that ornamental plantings could promote community health and well-being. This attention to aesthetics is said to have improved after Brother Dutton’s arrival in the mid-1880s, and it is a key characteristic of the settlement landscape during the historical period.

While there have been significant losses in historical vegetation—such as the disappearance of uniform plantings between building complexes—other original plantings remain. Fruit trees and ornamentals are found in nearly every yard and building complex. Original ornamental trees and shrubs can also be found throughout the settlement, and include the African tulip tree, as well as crown flower, hibiscus, ironwood, and kamani. Additionally, a large number of historical hedgerows still exist at Kalaupapa. Hedgerows include mixed plantings, typically of wiliwili, panax, and croton. These extant plants reveal aspects of daily life, community values, and cultural preferences in the settlement.

Historical garden areas and ornamental vegetation planted at Kalawao disappeared relatively quickly after the 1900 move to Kalaupapa. Today, plantings at St. Philomena and Siloama are maintained, and some remnant vegetation remains at the site of the old Baldwin Home, where there is still a large stand of eucalyptus, as well as a line of coconut trees along the southern and eastern boundaries of the complex. Lands to the north, south, and east of the developed area of Kalawao were released to succession when they were no longer used for agriculture. As a result, the majority of the Baldwin Home site has been reclaimed by forest. Additionally, a majority of the land to the east of Kaiulani Street is no longer residential and has also been released to succession. Today, remaining historic vegetation at Kalawao includes a variety of fruit trees such as mango, avocado, breadfruit, tamarind, banana, papaya, citrus, Surinam cherry, guava, litchi, coffee, and coconut.

Small-scale Features

Numerous small-scale features remain and are located throughout the landscape. Structures such as statuary, cisterns, monuments, and memorials lend detail and character to the physical landscape and possess utilitarian, decorative, and spiritual importance. Notable examples include Mother Marianne’s Grave; the Saint Damien Monument; the Mother Clinton Monument; the Statue of the Sacred Heart of Jesus in front of the St. Francis Catholic Church; the Baldwin Home Grotto; the Grotto at St. Francis Catholic Church; church bells; Kamehameha Street stone culverts; building ruins and the foundations of non-extant structures; dry-laid masonry rock walls; cemetery markers and monuments; and additional features within the Bishop Home, including the cistern, bake oven, and flag pole.

Cemeteries

NPS considers a cemetery to be a site in the landscape, defined by a grouping of grave markers. The cemeteries in Kalaupapa NHP serve as the final resting place for thousands of Hansen’s disease victims and the kōkua who assisted them. Archival documents describe the rapid rate at which early Kalawao patients died, and the shallow and unmarked graves in which some were buried (Greene 1985). The 1946 tsunami and vegetation overgrowth have further

reduced the number of marked burials in the settlement. The known cemeteries are located in each of the ahupua’a on the peninsula: Kalawao, Makanalua, and Kalaupapa.

In 2003–2004 the Western Archeological and Conservation Center of the NPS completed a cemetery survey to establish a baseline inventory of all known grave markers in the park. This survey recorded a total of 1,180 individual markers and built on a 1991 directory of grave markers. In this project, burials from existing markers were documented to replace several records destroyed along with the Old Hospital in a July 1990 fire.



Kalaupapa graveyard, early 1900s. Photo courtesy of Damien Museum.

While there are 1,180 markers recorded to date, this does not preclude the possibility that more markers and/or cemeteries may still be identified in the future. The list of 1,180 grave markers was entered into the List of Classified Structures (LCS) database along with associated condition assessments in 2007. As part of regular monitoring, in 2011, condition assessment updates were completed on all of the grave markers included in the LCS.

The grave markers vary in size and style. Some are raised and others flush with the ground, and they exhibit various forms, such as that of a cross, a post, a pillow, or an obelisk. They include mausolea, tomb vaults, hakka urn houses, temporary grave markers, and simple slabs covering the entire grave. Materials used to construct the grave markers include wood, rough lava stone, concrete, iron pipes, bronze plaques, granite, marble, and sand. The condition of the markers ranges from excellent to unrepairable. Recent graves are adorned with leis, plastic flowers, and other tributes.

The NPS cares for all marked cemeteries by clearing vegetation and maintaining the ground cover, enabling easier access. The NPS also restores grave markers by repairing broken markers, re-stacking stone rubble masonry, re-setting tilted markers, leveling settled grave slabs, clearing overgrown vegetation from tombs, and repairing damage from roots.

Historic Buildings and Structures

An historic structure is defined by NPS Director’s Order # 28: Cultural Resource Management as “a constructed work, usually immovable by nature or design, consciously created to serve some human activity.” Historic structures include “buildings and monuments, dams, millraces and canals, nautical vessels, bridges, tunnels and roads, railroad locomotives, rolling stock and track, stockades and fences, defensive works, temple mounds and kivas, ruins of all structural types, and outdoor sculpture.” For the purposes of this GMP, historic buildings are defined as enclosed structures with walls and a roof, consciously

erected to shelter residential, industrial, commercial, agricultural, or other human use, and constructed and used in Kalawao and Kalaupapa Settlements.

Historic buildings and structures are listed in the NPS List of Classified Structures (LCS). The LCS is an evaluated inventory of all historic and prehistoric structures in which the NPS has, or plans to acquire, legal interest.

When the Kalaupapa Leprosy Settlement historic district was declared a National Historical Landmark (NHL) in 1976, over 400 buildings stood in the area. Over the years, several buildings were lost due to weather-related

deterioration and termite infestation. Upon establishment of Kalaupapa NHP in 1980, NPS completed an inventory of the historic buildings. Knowing that not all buildings could be saved, the NPS targeted approximately 200 historic buildings for preservation. At the same time, the NPS has identified historic buildings which were not listed in 1980, but which contribute to the historic district’s character and setting.

Buildings are of four major types: state constructed residential, administration/industrial, religious, and patient-built structures. Despite their different uses, nearly all the buildings share an architectural cohesion that is the result of a consistent handling of form, material, and style. Similarly, the marked cemeteries in the

park display relatively consistent use of materials, construction styles, and techniques.

Most of the historic buildings at Kalaupapa were erected by the State of Hawai’i Department of Health. Additionally, patients constructed various buildings and structures, ranging from garages, pig sties, and chicken coops to cottages on the beach that offered rest and recreation outside their institution-provided facilities. Despite the maintenance challenges, most of the historic buildings and structures still stand as visible testaments to the needs and strengths of the Hansen’s disease patients. To effectively recount how patients shaped their lives on the peninsula, it is important to preserve and maintain these small but significant patient-built elements.

Materials and Stylistic Features

The specific materials, style, and floor plan of the buildings depend largely on the period of construction. Different construction phases at Kalaupapa resulted in distinct subcommunities of types, each with its own standardized plans and building components.

The oldest architectural type still visible at Kalaupapa is expressed in the small cottages, most of which are less than 400 square feet in size. These were built in the early 1900s out of materials taken from buildings abandoned in Kalawao. While the cottages do not stand in an obvious grouping today, they can still be seen in some residential areas. Their form is distinctive and was once much more prominent in the settlement. They are similar in layout and construction to the early housing built by Hawai’i sugar planters for immigrant laborers during the expansion of the industry in the late 1890s and early 1900s. They feature single or double-pitch gable roofs with wood shingle roofing and eaves that extend to cover a porch that spans the front. The interior layout is limited to two or three spaces, though outbuildings such as wash houses, workshops, and outhouses add functional space.

Mid-period buildings constructed between 1919 and the 1930s expand on this early housing type and reflect many features of standard plans produced by the Hawai’i Sugar Planters Association. Now known as the Hawaiian plantation style, this architectural approach draws on the single-wall construction tradition with girts on the exterior for added lateral stability. The roofs are hipped with overhanging eaves that extend in front to cover a porch. Window and door openings appear singly or in pairs, with multi-pane sashes. Features such as columns, cornices, and moldings may be added to this basic design.

After World War II, residences at Kalaupapa were typically built in the style known as “Hicks Homes,” a standardized, pre-fabricated housing type popular in Hawai’i at the time. This style is named for Hicks Construction, which offered many of these homes in a catalog of floor plans. Customers found the

catalogs appealing because they served as a “one-stop-shop” for all house construction needs: Hicks provided all necessary documents to expedite financing and would even assist in obtaining a building permit. Hicks Homes were also attractive because they were marketed aggressively, resulting in a large number of homes that held their value.

Hicks Homes are similar in construction to the previous housing types described: they possess single wall tongue-and-groove exterior load-bearing walls and single-wall tongue-and-groove non-load bearing interior partitions. The Hicks Homes also differ from the earlier housing in their larger

size and greater number of amenities. They were intended for sale to the general public as entirely self-contained family homes and as such have living rooms, bedrooms, kitchens, and bathrooms compliant with City and County of Honolulu building codes, as well as a complete kitchen compliant with Federal Housing Administration (now U.S. Department of Housing and Urban Development) standards for arrangement, counter space, and cabinet space. They were also provided with utility connections for a clothes washer. This is in contrast to the older houses at Kalaupapa that may not have complied with building codes or required cooking and laundry facilities, which were provided in central dining halls and laundries. Many Hicks Homes remain, particularly along the south side of Damien Road, with a few interspersed among

the older dwellings in the central and main residential areas. These quintessential postwar houses are contribute to the historic character of the place.

Residential Buildings

Today almost all residential buildings exist at Kalaupapa Settlement. They include individual homes and group living homes. Both kinds are typically single-story, wood-frame buildings sitting one to 2.5 feet above grade on post foundations with rock or concrete footings. The layout is usually a simple massing of rectilinear spaces accessed from an open porch.



Kenso Seki Residence. NPS photo.



The Bay View Home kitchen serves as the park’s Natural Resource Management office. NPS photo.

Individual Residences

Residential buildings are mostly detached single-family dwellings, but seven residential buildings are group homes. Most are of wood-frame construction with sloped wood or composition shingle, or built-up bituminous roofing.

Group Homes

Most of the group homes are similar in construction to the plantation style cottages, but on a much larger scale. The first five were built around 1916, four at Bay View and one at Baldwin Home in the southwest corner of Kalaupapa Settlement. Of these five only three remain. The other two group homes were built in 1929 at McVeigh at the northeast corner of the settlement. Another group home, identical to the others, was built at Bishop Home. This main structure is surrounded by auxiliary buildings such as wash houses, laundries, utility buildings, and storage sheds.

One remaining dormitory, at Bay View, is a Quonset building left at Kalaupapa by the Navy after World War II. The steel-framed, corrugated half-cylinder structure is one of two in the national historical park (the other served as the lumber storehouse).

The McVeigh Home and Bay View Home complexes remain relatively intact with both their main structures and many outbuildings still standing. The group home at Bishop Home no longer exists, but the concrete foundations are still extant. The only remnants of the Baldwin Home are the entry gate pillars and building foundations.

Patient-built Buildings

Using their own funds and labor, the patients constructed simple, small buildings for their own use. These wood-framed vernacular buildings included garages, sheds, animal shelters, and beach houses. Some were constructed on stone or concrete foundations, others were built with a concrete slab on grade, and still others—typically garages—were without a floor.



Top to bottom: 1. Quonset hut dorm. 2. Craft and Storage Building (former Bakery). 3. St. Francis Catholic Church. 4. Marks Beach House, East Peninsula. NPS photos.

Administrative/Industrial Buildings

Kalaupapa Settlement’s fame as a Hansen’s disease treatment facility came partly from the Hawaiian and territorial government’s efforts to build facilities that met the social and functional needs of patients. These included social gathering places as well as commercial services.

Paschoal Hall, the most important community building, stands prominently at the center of the settlement. It is distinguished by its size and its location in an open space, surrounded by tall palms. Built in 1916, the hall is a key historical feature illustrating Kalaupapa’s administrative philosophy of improving patients’ quality of life. It has been used for dances and to show movies, and it has served as a venue for live entertainment and a space to host other community events. This landmark structure retains the basic elements of its original plantation style architecture, such as tongue-and-groove vertical wood siding, slider windows, stile-and-rail doors, a truncated hip roof, and concrete footings. Notably, its interior once included a balcony with a railing (no longer present) that kept patients and non-patients separated from each other.

McVeigh Social Hall is today the main venue for most of the community activities at Kalaupapa. It sits at the center of the McVeigh Home complex located at the northeast corner of the settlement. The hall has recently been reroofed and repainted on the exterior. Another social hall was the Women’s Social Club. It was converted to the bakery in the mid-1930s and is now known as the Craft Shop. This is a small wood-framed building with gable roof covered with wood shingles.

In addition to the social halls, several ethnic groups built their own gathering places during the 1900–30s period of expansion and community improvement. These included the Americans of Japanese Ancestry (AJA) Benevolent Society Hall, the Chinese Clubhouse, and the Filipino

Meeting House. AJA Hall is the only building that remains from this group. It currently serves as the museum and bookstore for park visitors and is operated by the Kalaupapa Historical Society with the assistance of Pacific Historic Parks.

Other remaining civic buildings are the U.S. Post Office, Kalaupapa Store, Mother Marianne Library, gas station, and the Department of Health administrative office. These are residential in scale and distinguished by their location in the community’s core, near the pier. Additionally the post office, store, and gas station are notable for their concrete construction. The library and the administrative office are built of concrete masonry units, and their design is modern, in contrast to the architecture in the rest of the community.

The industrial area includes buildings that house the maintenance functions of the settlement, including storage of facilities repair and maintenance materials, the wood fabrication shop, automotive and equipment repair shops, and garages for vehicles and grounds maintenance equipment. Most of the industrial buildings do not reflect the plantation style in their size, appearance, or materials. They also lack distinctive embellishments, except for the main warehouse next to the pier, which features decorative plaster in the Art Deco style.

They are generally constructed on concrete slabs on grade or built on concrete piers set directly in the ground. With exterior walls of concrete or unit masonry, they are large and rectilinear, with flat or simple gable roofs of corrugated metal and few if any distinctive elements. Standard door openings (pedestrian doors) with stile and rail doors are present, and large sliding doors and side-hinged barn doors allow access for fork-lift handled loads. Storage sheds and vehicle and equipment shelters are generally without doors or walls, enabling easy access to large materials and equipment. Windows on large buildings that house industrial



Top to bottom: 1. Bay View Home Residence. 2. Recreation Hall in the McVeigh Home complex. 3. Yonemuri Residence. 4. Driveway leading to the Bishop Home. NPS photos.

shops are steel-framed with awning sashes. The lumber storehouse is a Quonset hut, which were commonly used in the Pacific by the military.

Religious Buildings

Places of worship played a significant historical role at both Kalawao and Kalaupapa Settlements and continue to be important to the remaining patients and community. The primary religious congregations are Catholic, Protestant, and Mormon. Over time each congregation has occupied several religious structures, as original buildings fell into disrepair or were enlarged to accommodate growing parishes.

Old Stone Church

The oldest remaining church structure on the peninsula was built at Kalaupapa in 1853, during the pre-settlement period. It was built in the form of a typical Calvinist missionary meeting house, with a simple rectangular volume, gable roof, and thick rubble masonry walls made of lava rock with coral lime mortar and deeply set, double-hung windows. Although the configuration and openings have changed significantly due to varied uses—it has served alternately as a jail, a repair shop, a warehouse, and a storage space for fire engines—its original exterior walls remain. It now functions as the NPS Ranger Station.

Siloama

On December 23, 1866, 35 people gathered to organize a Protestant congregation at Kalawao. The church structure was dedicated in 1871. Siloama means “Church of the Healing Spring.” It was rebuilt in 1880, altered numerous times, and completely reconstructed in 1966. This austere structure was the first Protestant church erected for the exiled Hansen’s disease patients. The white wood-frame structure rests on concrete pilings and is one-story with a gabled portico. It has six double-hung windows, a small steeple, a gabled roof of corrugated metal, horizontal

channel siding, and corner boards. Despite a complicated history, Siloama remains highly significant to the community for its historical and symbolic associations with the trials and spiritual life of the earliest Hansen’s disease residents of Kalawao.

St. Philomena

The first Catholic Church on the peninsula, St. Philomena was built near Siloama at Kalawao in 1872, in a simple Gothic style. Erected in successive stages using both stone and wood, the church has a bell tower and gabled roofs. The original wood portion on the west side features double-hung windows. Along both sides of the primary building volume, which was built later, numerous triple-hung windows illuminate Gothic arch recesses. The building is associated with Saint Damien, who preached there and led much of the construction of the church. It was completed after his death.

Kanaana Hou

The Kanaana Hou Church at Kalaupapa was built by the United Church of Christ in 1915 in a modified Arts and Crafts Stick style. Laid out in the shape of a Greek cross, the wood-framed structure rests on a foundation of stone, concrete, and wood posts. It has a large bell tower, gabled portico, numerous double-hung windows, tongue-and-groove siding, and a cross-gable wooden shingle roof. Architectural details include Gothic arched louvers and large dentils in the bell tower, plus many chamfered buttresses. The Church recently underwent restoration work in 2004.

St. Francis

The current Catholic congregation worships at St. Francis Church in Kalaupapa, built in 1908. An Italian Gothic style building of reinforced concrete, it is noteworthy as an early example of this type of construction in such a remote location. It has a corner bell tower with gothic arches and double-hung windows, colored-glass quatrefoil windows, side buttresses, and a steep corrugated metal roof.

Latter-day Saints (LDS) Church

The LDS Church at Kalaupapa was built in 1940 in a modified plantation style with a low gable roof of composition shingles. It features plywood and batten siding, and sliding windows. All other buildings previously associated with the LDS Church at Kalawao and Kalaupapa have been removed.



Molokai Light Station. Photo by Rob Ratkowski, NPS.

Molokai Light Station

The Molokai Light Station is a historic district located on the extreme northern tip of Kalaupapa peninsula. The district surrounds a majestic 138-foot lighthouse, which guides mariners sailing from the west through the narrow and dangerous Kaiwi Channel that separates the islands of Molokai and O’ahu. Light from the station can be seen up to 28 miles away. The light station was operated by lighthouse keepers and resident Coast Guardsmen for 57 years, until it was automated in 1966.

In 1982, the lighthouse was listed in the National Register of Historic Places as the U.S. Coast Guard Molokai Lighthouse. In 2010, a cultural landscape inventory for the Molokai Light Station was completed and included documentation of the cultural landscape comprising the property.

The period of significance for the Molokai Light Station begins in 1908, when construction of the lighthouse began, and ends in 1955 when the last addition was made to the wash house. The Molokai Light Station is historically significant at a state level for its association with

maritime history, transportation, commerce, and social history. It is also significant as an example of maritime architecture and as an illustration of changing light station design during the 20th century.

Cultural landscape characteristics and features that convey the significance of the historical Molokai Light Station include natural systems and features, spatial organization, land use, vegetation, buildings and structures, circulation, and archeological sites.

The rich history that has shaped the site is displayed through a number of extant structures associated with the development of the 23-acre complex. In addition to the lighthouse, there are four other utilitarian and residential buildings, a concrete water storage tank, and a lava rock wall constructed in 1916 to define the property and control encroachment from ranging cattle. These structures are sited both for functional and operational purposes and in response to natural conditions. The organization of the buildings, the formal connection between buildings with pedestrian walkways and roads, and the use of vegetation to delineate space and screen the property from the weather are all key aspects of the design of the small development. Many of these landscape characteristics continue to convey the historical character, landscape patterns, structures, vegetation, and features associated with Molokai Light Station between 1908 and 1955.

The Molokai Light Station also contains archeological features such as foundations, concrete piers, stone walls, and a fence. These historical remnant structures are evidence of other uses and activities associated with the Molokai Light Station during the period of significance and may hold interpretive value. The site also includes many native Hawaiian structures and features, including stone walls, enclosures, and a heiau. These features played an important role in the physical development of the site and may have influenced past land use. Many of these features, including the stone wall enclosures, illustrate re-use or manipulation by the light station keepers and their families.

Museum Collections

The NPS began active management of the museum collections at Kalaupapa NHP in 1987. The collections illustrate the compelling story of the Hansen’s disease community, and they preserve and document the nationally significant natural and cultural resources in the park. Most of the collected materials represent the late 20th-century experiences of patient residents in the settlement. However, as NPS continues to inventory park resources, a growing portion of the collection consists of archeological artifacts and representative natural specimens. The park’s Scope of Collections Statement, updated in 2010, reflects these changes. In 2006 the park prepared a Museum Management Plan and began construction of Hale Mālama, a storage and research facility for the collections at Kalaupapa NHP. The Museum Preservation Maintenance Plan (Housekeeping Plan) and the Integrated Pest Management Plan were com-

pleted in 2009 and 2010 respectively; these plans provide specific guidance to address the care and preservation of the park museum collection.

Cultural and Historical Collection

The cultural and historical collection preserves objects and archival materials representing the history, archeology, and ethnology of Kalaupapa. The cultural collections at the park currently comprise approximately 200,000 objects, 35 linear feet of cataloged archival materials, and 27 linear feet of uncataloged archival materials.

Types of archival material in the collections include the following:

Field records for archeological projects, natural resource activities, and historic preservation efforts at the park;

- NPS operational records;
- Records of community organizations;
- Personal papers of patient residents, workers, and visitors; and
- Rare books and manuscripts that have a history of use in the settlement, or are associated with park projects or eminent figures.

The park library contains other rare books that either duplicate museum copies or have tangential association with the park. Library holdings include out-of-print books, technical references, and administrative documents.

Though the majority of the collection derives from the late 20th century, a full range of time periods is represented.

Pre-1866—Native Hawaiian items from before European contact include animal bone, lithic material, shell fragments, and other organics. Historical records document commerce, land use patterns, and daily life of the kama’āina of Kalaupapa.

Early Historic Era, 1795–1866—The park’s reference library has photocopies of some of the māhele or land claim proceedings that hint at life on the peninsula prior to the 1850s. The museum collection contains a relatively small number of artifacts and an archive representing this time period.

Transitional Era, 1866–95—The museum collection also contains a relatively small group of artifacts and an archive representing this time period.

Kalawao Settlement Period, 1866–ca. 1900—The collection includes building fragments and architectural features, such as the original cross from the steeple of St. Philomena Church. NPS preserves and stores several items related to Saint Damien’s life at Kalawao. The collection additionally contains catalogued artifacts from sites that can be dated after European arrival in Hawai’i (1778–1866), including charcoal, basalt, and shell, as well as more modern materials such as beads, buttons, and glass and iron fragments.

Kalaupapa Settlement Period, 1888–present—Archival materials in the collection represent the changing lives of patient residents with the growth of the community, the addition of amenities, increasingly effective treatments, and, finally, the lifting of restrictions. The collection includes oral histories, photographs, medical technology and equipment, artwork created by patients, and personal effects such as clothing, jewelry, and modified tools. Also included are personal papers and documentary materials of patients, former state employees, and clergy; and organizational records from Kalaupapa’s social, religious, and administrative groups.

Kalaupapa Park Period, 1980–present—This collection includes photographs and mementos created from Saint Damien Day in 1989, the beatification in 1995, and the canonization celebration in 2009. Recent examples of documentary acquisitions include memorabilia (photographs, programs, posters) from the 50th wedding anniversary of Paul and Winifred Harada, color photographs of the filming of the movie Molokai, the exhumation of Saint Marianne, the centennial commemoration of Saint Damien’s death, and the canonization of Saint Damien in Rome in October 2009.



Kalaupapa museum collection items. Top to bottom: 1. Spoon modified to be held by someone who has difficulty grasping. 2. Painting by patient resident Ed Kato. 3. Handmade casting net. 4. Flip top can opener made by Kenso Seki, gift for Ed Kato. NPS photos.

Items created by patients are an especially important component of this collection. They are classified as “Ethnology” for their unique place in the story of Kalaupapa. From the artworks painted by Ed Kato and Henry Nalaeiua, to the can openers devised by Kenso Seki, to the doilies crocheted by Sarah Benjamin, these objects hold great potential for exhibits and research.

Natural History Collection

The biological collections include a partial inventory of plants, herpetology specimens, insects and arachnids, marine invertebrates, and shells from the Kalaupapa region. All field records associated with specimens collected by researchers at Kalaupapa NHP are retained as part of the museum collection, regardless of the disposition of the specimens. Some items are owned by the NPS, some are on loan, and some belong to the State of Hawai’i.

Public Access to Collections

All research is encouraged, regardless of educational level. A primary concern at Kalaupapa NHP is that archival collections may contain patient-specific medical information that is privacy-protected under the Health Insurance Portability and Accountability Act (HIPAA) of 1996. Oral history interviews at the park may have specific restrictions issued by the interviewee that must be honored.

The park has completed a Digital Imaging Project through the NPS Harpers Ferry Center, creating 300 high-resolution digital images of park museum collection objects.

Access to information regarding the cemeteries is available by contacting the Hawai’i Department of Health to obtain patient birth-death records or by contacting the park staff.

Natural Environment

The park’s natural environment consists of local weather patterns, air quality, sound, and light, as well as geological, terrestrial, aquatic, and marine resources. These elements in turn are influenced by human activities. In addition, threats and stressors impact park ecosystems: examples include invasive species, diseases and pathogens, pollutants, fire, habitat degradation, cyclic variation, and changes in weather and climate.

Weather patterns in the park are typical of a subtropical to tropical environment with mountainous regions in close proximity to the ocean. Wind, rain, and temperature are relatively mild and do not vary much throughout the course of the year. The environmental quality of the air, soundscape, and light settings are excellent and typical of remote areas with minimal human presence.

Geological resources within the park include a portion of the north shore cliffs, intervening valleys, a volcanic crater with a crater lake, lava tubes, caves, and offshore islets. The cliffs within and to the east of the park are some of the highest sea cliffs in the world. These cliffs are all that remain of the southern rim of an extinct volcano after the northern half of the caldera slid into the ocean. Following this cataclysmic event, the Kalaupapa peninsula was created by the eruption of Pu’u ‘Uao, approximately 230,000 years ago (Stearns and Macdonald 1947).

The terrestrial resources span numerous habitats from ‘ōhi’a rainforest on the Pu’u Ali’i plateau, to the valleys of Waihānau and Wai’ale’ia, the north shore cliffs, Kauhakō Crater, the coastal lowland, the coastal spray area, and the offshore islets of Huelo and ‘Ōkala. The terrestrial fauna and flora identified in the park include over 30 federally listed threatened and endangered species of plants and animals. Introduced animals include deer, feral goats, feral pigs, mongoose, rats, cats, and dogs. Kauhakō Lake contains an unusual microbial and invertebrate fauna. Lava tubes and caves on the peninsula also contain endemic invertebrate species and incompletely inventoried flora and fauna.

The aquatic resources include several freshwater streams which are at least partially within Kalaupapa. Most of Waihānau, Wai’ale’ia, and Waikolu streams are in the park, except for the headwaters. Wainēnē, Anapuhi, Waiohookalo, Keawanui, Ka’ili’ili, and Pelekunu streams have headwater sections that are

within the park. Of the streams within the park in their entirety, only Waikolu is considered perennial along its entire watercourse. Other streams may have perennial seeps and ponds, but much of the watercourse may be dry for portions of the year. Waikolu Stream contains five native diadromous fish species, native snails, and shrimp. Surface water and groundwater withdrawn from Waikolu Stream is the source of most of the water for the western half of Molokai. Water diversion has been shown to negatively impact native fauna and is therefore a concern in terms of park resources. An anchialine pool exists within the park and was historically modified for use as a fishpond (although it is no longer kept up).

Significant marine resources exist within the surrounding marine water boundary, extending as far as one-quarter mile offshore. These include endangered species (for example, the monk seal and humpback whale), threatened species (such as the green sea turtle), and well-preserved high-wave-energy coral reef communities, including marine intertidal and fish resources.

Resource management priorities encompass the inventory and monitoring of resource conditions, the preservation of native ecosystems and the native species that inhabit them, as well as the control of nonnative species. These tasks are cooperatively managed with the State of Hawai’i and other adjacent landowners and community groups as a major strategy for resource protection.

Weather

The local weather patterns at Kalaupapa influence the geological, terrestrial, and aquatic resources within the park. Weather on the island is principally impacted by wind, rain, and air and sea temperatures.

Kalaupapa is on the windward side of Molokai and receives trade winds from the northeast that blow almost constantly across the park. Averaging 14 mph, the trades help to maintain a generally moderate tropical climate (Remote Automatic Weather System [RAWS] 1993–2010). On typical days when the trade winds are absent, the weather grows hotter and more humid.

Rainfall varies with the topography. On the peninsula mean annual rainfall is 30 inches, plus or minus 13 inches (RAWS 1993–2010). The Pu’u Ali’i ‘Ōhi’ale Plateau and Waikolu Valley are the wettest spots in the park with an annual rainfall of 80 to 120 inches (Juvik, Juvik, and Paradise 1998).

Over the course of the year, temperatures range from 56° to 94° F with an average of 76 °F. Humidity ranges from 62% to 87% with an average of 75% (RAWS unpublished data, 1993–2010). During spring, summer, and fall, daytime temperatures average 75°F, with evenings slightly cooler. In the winter months of December through March, night temperatures may drop to the upper 50s. Ocean temperatures range from 71°F in late winter to early spring to 80°F in the late summer to early fall. The average annual temperature in the ocean around the peninsula is 76°F (NPS unpublished data, 2005–2010).

Environmental Quality: Air, Sound, and Light

The air quality, soundscapes, and light environment all have an effect on the resources in the park. These factors can alter the location and abundance of plants and animals in the landscape.

Air Quality

At Kalaupapa NHP, the combination of minimal development, isolated topography, and near constant trade winds provides for generally good air quality throughout the year. Kalawao County consistently ranks near the top in air quality among counties in the U.S.

A potential source of impact on air quality at the park is Kilauea Volcano on the island of Hawai‘i, which emits sulphur dioxide (SO₂) that can spread throughout the islands during periods of trade wind stagnation. The volcano has been erupting continuously since January 3, 1983, with occasional spikes in SO₂ emissions in 1983, 1987, and 2010 (U.S. Geological Survey 2009). The volcano’s vent emissions have increased since 2008. However, since neither the NPS nor the State of Hawai‘i monitors air pollutants on Molokai, the volcano’s effect on air quality at Kalaupapa NHP has not been quantified. Kalaupapa NHP is categorized as a Class II area under the federal Clean Air Act. A moderate pollution increase is considered legally acceptable at parks in this class.

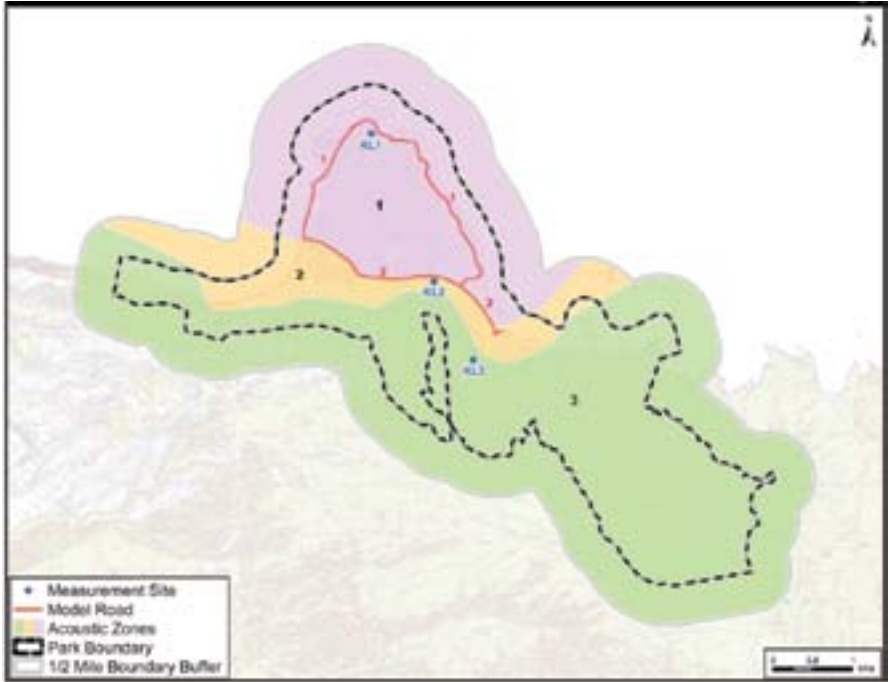
Soundscape

A soundscape is made up of all the sounds in an area, including those inaudible to the human ear. It usually includes both human-caused sounds, such as people’s voices and engine noise, and natural sounds such as wind, waves, and birdsong.

The natural part of the soundscape is a key element of the visitor experience in national parks. It is also vital for maintaining healthy ecosystems, because to survive and reproduce, wildlife must be able to hear and recognize sounds such as mating calls, territorial claims, and warnings of danger from predators. At Kalaupapa NHP, where the sea is close at hand and 92% of the land is either shrubland or evergreen forest, natural sounds emanate from all areas of the landscape.

A “Baseline Ambient Sounds Level Report” was prepared in 2006 to provide baseline information on sound quality that can be drawn upon for future air tour management plans. Limited sound level monitoring was conducted in three zones. These three zones were distinguished mainly by differences in vegetation and climate, and also took park management zones and commercial air tour routes into consideration. (Lee et al. 2006). These three zones are: Zone 1: the peninsula, Zone 2: the base of the cliffs, and Zone 3: the cliffs, valleys, and Pu‘u Ali‘i NAR (See Figure 4.1).

Figure 4.1 Acoustic Zones



The study found Kalaupapa to be a relatively quiet place, with noise levels lower than 20 decibels throughout much of the park. Around the main road and at the airport, which are the primary areas of human activity, machinery and vehicle use, levels can be 45 decibels or higher. Sounds documented in the study included aircraft of all types (tour, commercial, general aviation, and military); motor vehicles; noise from hikers; and people talking.

Lightscaapes

A natural lightscape is an environment undisturbed by artificial light, with clean air that allows a direct experience of the cycles of sun, moon, stars, and sky conditions. At Kalaupapa both residents and visitors value the dark night skies that can be seen readily from undeveloped parts of the park. Wildlife benefits from maintenance of a natural lightscape, and minimizing lighting helps to conserve energy. However, in developed areas of the park appropriate levels of artificial lighting are part of the infrastructure needed for wayfinding and safety. In making management decisions about lighting at Kalaupapa NHP, the NPS seeks to strike a balance among all these factors.

Geological Resources

Landforms and Geological Processes

Lands within Kalaupapa NHP consist of the relatively flat Kalaupapa peninsula, Nihoa (a traditional land unit west of Kalaupapa), three interior valleys, and the rim of the adjacent cliffs or pali. All of these landforms were the result of dramatic volcanic and erosional processes that occurred over hundreds of thousands of years.

Molokai was formed by the eruption of two shield volcanoes, Mauna Loa to the west and Kamakou to the east. Their southern flanks slope gently to the sea in the typical manner of shield volcanoes. However, their northern flanks have been truncated by great cliffs rising up to 3,000 feet high. The sea cliffs of Molokai’s north shore were formed when the northern third of Kamakou (also called the East Molokai Volcano) suddenly collapsed and slid into the sea. This was a geological event of cataclysmic proportions, involving about 600 cubic miles of island falling along a 25-mile-long landslide that tumbled as far as 120 miles offshore (Yokose 2002). The landslide was so fast and powerful that the last 80 miles of its 120-mile run was uphill, climbing 900 feet up from the Hawaiian Deep, the great undersea depression created by the weight of the islands.

Displacement of this much material generated a 2,000-foot-high tsunami that inundated the rest of Molokai and the nearby island of Lāna‘i. Scientists date this geologic event at around 1,400,000 years ago (Satake et al. 2002).

About 230,000 years ago, long after Mauna Loa and Kamakou became extinct, another small shield volcano rose from the sea floor and joined against the north cliffs. This volcano, named Pu‘u ‘Uao, formed a relatively flat triangle of land through continuous flows of pāhoehoe lava (Stearns and Macdonald 1947). The resulting peninsula was named Kalaupapa. Kalaupapa peninsula is an area of approximately five square miles, stretching two miles from the cliffs to the tip, and 2.5 miles east to west at the base of the cliffs. The rim of the volcano remnant rises over 420 feet, forming Kauhakō Crater with a crater lake at the bottom that is more than 800 feet deep (Donachie et al. 1999). Most of the lava discharged northward through a large lava tube that is now collapsed. Several other tubes are exposed at the sea where they have been eroded to form natural bridges, blow holes, and other scenic forms (Stearns and Macdonald 1947).

Soils

The soils at Kalaupapa are derived from basalt flows from the Kauhakō Crater (Clague et al. 1982). The soils are rocky, silty clay loam; the typical profile consists of topsoil from 0 to 5 inches (0–13 cm) below the surface and subsoil ending at bedrock at 12 inches (30 cm) below the surface (McCoy and Harts-horn 2007). The soils from the Kalaupapa series occupy most of the central Makanalua ahupua‘a and the eastern and western slopes of the Kauhakō Crater; slopes range from 3% to 25% (Natural Resources Conservation Service map).

A much wetter ecological zone skirts the southern edge of the peninsula with colluvial soils distributed in valley bottoms and along the base of cliffs (Foote et al. 1972). These colluvial soils are derived directly from the cliffs above and are typically stony, well-drained, and of silty clay. Their depth ranges from 5 to 6.6 feet (1.5 to 2 meters) to bedrock.

Hale‘iwa soils underlie the southern portion of the Kalaupapa Settlement, the lowlands of Kalawao, the valley drainages, and drainages roughly parallel to the pali. Topsoil is silty clay, showing evidence of tillage or other disturbance to the soil profile, ranging from 10 to 18 inches deep; soils become rockier with depth. Topsoils are moderately susceptible to wind erosion and well-drained. Bedrock

is typically more than 80 inches deep. These silty clays formed from the basic igneous material that eroded in the principal stream drainages.

The vegetated coastal areas of the peninsula have Jaucas Series soils, which are deep, fast-draining, and highly permeable sands formed in calcareous sand deposits with coral and shell fragments. The sands demarcate the extent of the agricultural fields of the native Hawaiians who settled on Kalaupapa prior to the historic period.

The trade winds blow nearly continually from the northeast and are a constant erosional force. Evidence indicates that much of the Kalaupapa peninsula was forested prior to 1500, affording soils a degree of protection from wind erosion. With the present low-stature exotic vegetation, soils closest to the windward side of the island may demonstrate the effect of increased wind erosion following the clearing of forests for agricultural use. Soils closer to the windward coast of the island have decreased levels of nitrogen, magnesium, calcium, carbon, and phosphorus compared to the central and leeward portions of the



Aerial view of Kalaupapa. The North Shore Cliffs are on the left, the islets are in the foreground, and the Kauhakō Crater and Molokai Light Station can be seen on the left and right sides of the peninsula, respectively. NPS photo.

peninsula. These conditions could be an artifact of the vegetation conversion by native Hawaiians (McCoy and Hartshorn 2007).

Soils at higher elevations reflect the steep topography of the land. The State Forest Reserve is dominated by two soil types: rock outcrop land that is mainly exposed bedrock, and rough mountainous land, which is characterized by steep valley walls and a very thin soil mantle (Foote et al. 1972). Soils of the Pu‘u Ali‘i Natural Area Reserve tend to be either rough mountainous land or tropaquods consisting of steep land, gulches, and mountainsides.

Terrestrial Resources

The terrestrial environment at Kalaupapa NHP is divided into seven general terrestrial habitat areas (Figure 4.2): the Pu‘u Ali‘i plateau, the valleys of Waihānau and Wai‘ale‘ia, the north shore cliffs, Kauhakō Crater, the coastal lowland, the coastal spray area, and the offshore islets of Huelo and ‘Ōkala. The plateau, valley, cliff, and islet areas are specially designated by the state and/or

federal government for their resource value. The major terrestrial habitats, their predominant vegetation, and designations are described below.

Terrestrial Habitats

Pu‘u Ali‘i Plateau—State of Hawai‘i Natural Area Reserve (NAR), 1,329 acres. The Pu‘u Ali‘i plateau is in the southeast corner of the park at an elevation of 2,500 to 4,222 feet. It supports one of the best examples of Hawaiian montane wet forest or ‘ōhi‘a rainforest in Hawai‘i and is an essential habitat for rare and endangered native forest birds, including the Molokai creeper (*Paroreomyza flammea*). A representative portion of the Molokai summit, Pu‘u Ali‘i lies between Pelekunu and Waikolu valleys. This area is managed through a cooperative agreement with the State of Hawai‘i’s Department of Land and Natural Resources. The area is designated a Natural Area Reserve by the state, and access is limited.

The Pu‘u Ali‘i region is considered one of the Special Ecological Areas of Kalau-papa NHP. Eight natural vegetation communities have been identified in the Pu‘u Ali‘i NAR. These include ‘ōhi‘a/mixed shrub montane wet forest, ‘ōhi‘a/ montane wet shrubland, mixed fern/mixed shrub montane wet cliffs, ‘ōhi‘a /‘ōlapa montane wet forest, ‘ōhi‘a/uluhe lowland wet forest; uluhe lowland wet shrubland; Hawaiian intermittent stream, and ‘ōhi‘a/uluhe montane wet forest (Hawai‘i Heritage Program 1989). Several of these communities are also found on the adjacent Pelekunu Preserve (TNC 2003).

Roughly 160 plant species were documented in the Pu‘u Ali‘i NAR in 2003 (Wood and Hughes 2003). Seventy percent of these species are considered native to Hawai‘i. Surveys by Wood et al. (2005) documented at least 43 new plants within the NAR. Approximately 34 species within the NAR and surrounding area are considered rare plant taxa.

Waihānau and Wai‘ale‘ia Valleys—State of Hawai‘i Molokai Forest Reserve, 1,562 acres. The forest reserve is dominated by nonnative plant species, particularly in the lower and middle elevation areas from 500 feet to approximately 1,000 feet (State of Hawai‘i, Division of Forestry and Wildlife [DOFAW] 2009). Common nonnative species found in the forest reserve include Christmas berry (*Schinus terebinthifolius*), java plum (*Syzygium cumini*), strawberry guava (*Psidium cattleianum*), kukui (*Aleurites moluccana*), kiawe (*Prosopis pallida*), and lantana (*Lantana camara*).

The vegetation within the upper elevation areas (higher than 1,500 feet) of Wai‘ale‘ia Valley (Kalawao unit of the reserve) is largely uncharacterized, however scattered native species have been reported along the upper eastern ridge of the valley (DOFAW 2009). Native species noted in Wai‘ale‘ia Valley include uluhe (*Dicranopteris linearis*), *Carex sandwicensis*, hala (*Pandanus* sp.), ‘ha‘iwale, (kanawao ke‘oke‘o, *Cyrtandra* sp.), ‘ōhi‘a lehua, and alena (*Boehmeria grandis*) (Funk 1991). The upper elevation area of Waihānau Valley, just outside the park boundary, was noted to have high species richness by Hughes et al. (2007). Native plants documented by Funk (1991) in Waihānau Valley include: naupaka kuahiwi (*Scaevola procera*), ‘ōhi‘a lehua (*Metrosideros polymorpha*), kolokolo kuahiwi (*Lysimachia maxima*), and kopiko ‘ula (*Psychotria hawaiiensis*).

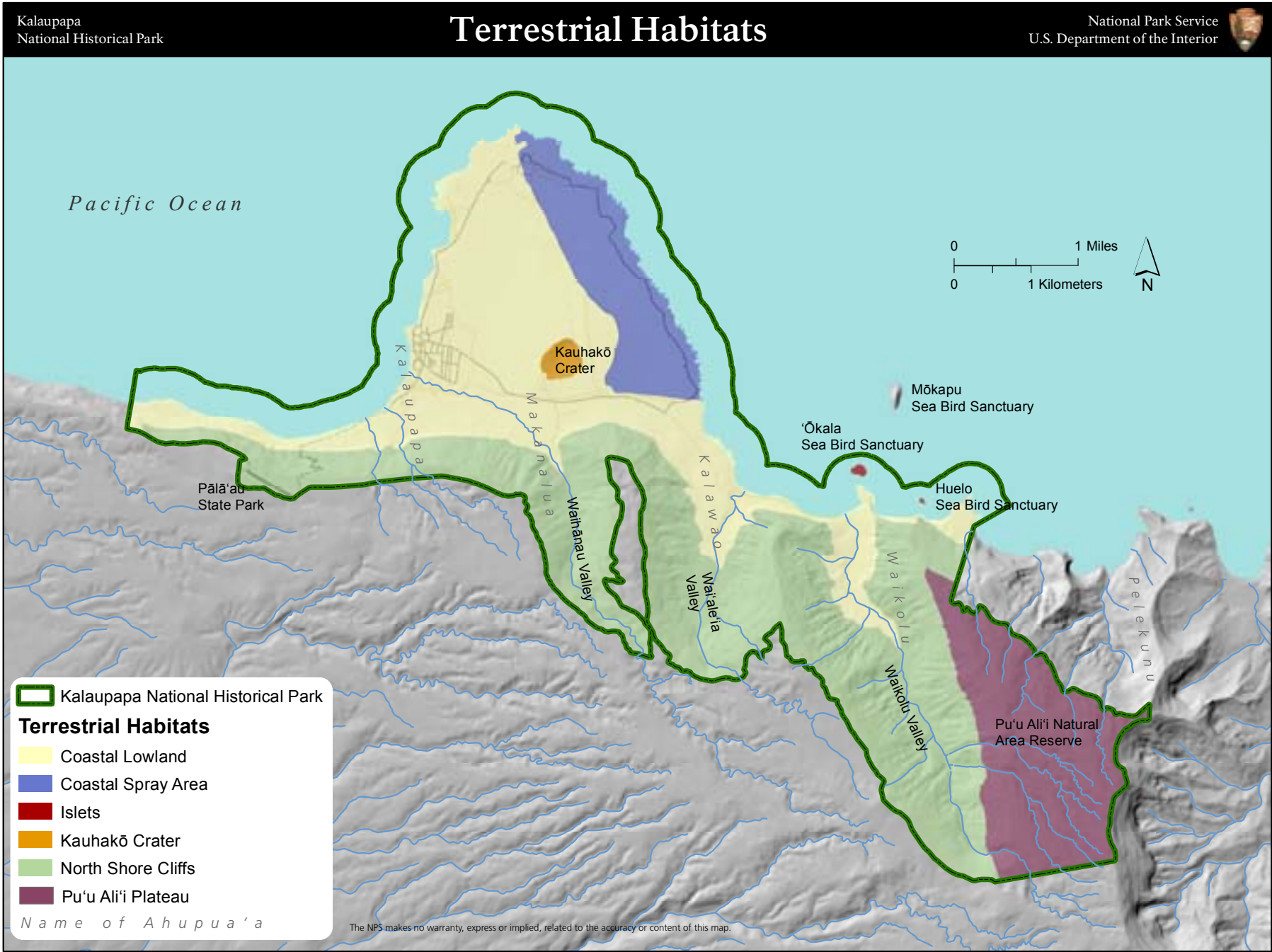
The Forest Reserve Area is managed by the State of Hawai‘i Department of Land and Natural Resources, Division of Forestry and Wildlife as a public hunting unit for pig, goat, deer, and game birds.

North Shore Cliffs—NPS North Shore Cliffs National Natural Landmark (NNL), 27,100 total acres with 5,085 acres in the park above the 500-foot contour line. The 2,000- to 3,000-foot cliffs (pali) separate the peninsula from the rest of the island of Molokai. In many places native plants survive, due to the steepness of the cliffs and the inaccessibility to goats, deer, and pigs. The cliffs along the entire northeast coast were designated a National Natural Landmark in 1972.

Vegetation in the NNL differs from the western and eastern sides of the park. In the western portion of the NNL, from Nihoa to the western boundary of Waihānau Valley, the vegetation is composed of nonnative forest, dominated by Christmas berry and java plum. Lantana and other nonnative shrubs and grasses are also common in this area.

The flora in Waikolu Valley, on the eastern portion of the NNL, is composed of mostly native species, but the lower elevation areas have all been modified by human use. The valley floor is dominated by common guava (*Psidium guajava*), java plum, white ginger (*Hedychium coronarium*), Boston fern (*Nephrolepis* sp.), lantana, and sourbush (*Pluchea carolinensis*). Flowering native plant species on steep, lower valley walls include fragrant flatsedge (*Cyperus odoratus*), manyspike flatsedge (*Cyperus polystachyus* var. *polystachyus*), euphorb (*Euphorbia celastroides*), ‘ōhi‘a lehua (*Metrosideros polymorpha*), lama (*Diospy-*

Figure 4.2 Terrestrial Habitats



ros sandwicensis), *Canthium odoratum*, au (*Hedyotis acuminata*), kopiko ‘ula, kopiko (*Psychotria mariniana*), Hawai‘i false nettle (*Boehmeria grandis*), and olonā (*Touchardia latifolia*). Native fern species noted in Waikolu Valley include one-tooth wood fern (*Dryopteris unidentata*), uluhe (*Dicranopteris linearis*), rough maidenhair (*Adiantum hispidulum*), bracken fern (*Pteridium aquilinum* var. *decompositum*), ama‘u (*Sadleria pallida*), and Gaudichaud’s halberd fern (*Tectaria gaudichaudii*).

Kauhakō Crater—141 acres. The crater contains a low-elevation summer deciduous dry forest. Historically, botanists described the crater as “one of the finer examples of dryland forest remaining on Molokai or elsewhere in the Hawaiian Islands” (Medeiros et al. 1996) containing an area of “pristine native lowland forest” that is “unexcelled elsewhere in Hawai‘i” (Linney 1987). The species composition in the crater was formerly noted as comparable to the south slope of Haleakala on the island of Maui, a region which has similar annual precipitation (Medeiros et al. 1996).

Previous studies and inventories in Kauhakō Crater and the surrounding environs have documented a total of 134 vascular plant species. Most of the species in the crater (72%) were introduced to the Hawaiian Islands (Medeiros et al. 1996). Surveys in the crater (Medeiros et al. 1996; Linney 1987) identified the following dominant plant communities: ironwood (*Casuarina equisetifolia*), naupaka (*Scaevola sericea*), lantana scrub with dwarf forest, roadside weeds, ‘ohe makai/hala pepe (*Reynoldsia/Pleomele*), remnant forest, Java plum/Christmas berry forest, and lantana/sourgrass (*Digitaria insularis*) thicket.

Coastal Lowland—2,701 acres. The majority of the vegetation in the lowland coastal area is composed of nonnative species. Guava, Christmas berry, lantana, and java plum are common.

The highest percentage of native vegetation is found at Kūka‘iwa‘a peninsula. The flora of Kūka‘iwa‘a peninsula is composed of approximately 76 plant taxa, of which 21 are endemic and 19 are indigenous. The remaining 36 plants species at Kūka‘iwa‘a are nonnative, and four of these are Polynesian introductions (LeGrande 2002; Wood 2008).

Two vegetation communities are identified on the Kūka‘iwa‘a peninsula. A littoral coastal vegetation community occurs in the ocean spray zone. Native halophytic (salt-adapted) plant species that occur in this community include mau‘u

‘aki‘aki (*Fimbristylis cymosa*), Faurie’s panicgrass (*Panicum fauriei* var. *carteri*), seacliff tetramolopium (*Tetramolopium sylvae*), ‘āhinahina (*Artemisia australis*), ko‘oko‘olau (*Bidens hillebrandiana* subsp. *polycephala*), and ‘ae‘ae (*Bacopa monnieri*). A single pistillate shrub of the rare hoawa (*Pittosporum halophilum*) also occurs in the littoral coastal vegetation community on the eastern side of the peninsula. This individual represents the only known naturally occurring plant of this species still extant on the main island of Molokai (Wood 2008).

The second vegetation community at Kūka‘iwa‘a is a relic coastal forest dominated by hala (*Pandanus tectorius*), alahe‘e (*Psydrax odorata*), and lama. Associated relic components occur around the back gulches and low ridges of the peninsula with populations of the native trees ohe makai (*Reynoldsia sandwicensis*), ulupua (*Nestegis sandwicensis*), and ‘ōhi‘a lehua, as well as native shrubs and herbs such as ‘ākia (*Wikstroemia* sp.), makou (*Peucedanum sandwicense*), ‘ko‘oko‘olau (*Bidens molokaiensis*), and globe schiedea (*Schiedea globosa*) (LeGrande 2002; Wood 2008).

The NPS initiated the Kūka‘iwa‘a Restoration Project (KRP) to restore fenced portions of the coastal habitat. The overall plant community at the KRP is being modeled after the loulu (*Pritchardia hillebrandii*) coastal forest on Huelo, which is only 0.3 miles (500 meters) to the west. Both common and rare native plant taxa are being outplanted at the site including hoawa, loulu, dwarf naupaka (*Scaevola coriacea*), and hāhā (*Cyanea* sp.) (LeGrande 2002; Wood 2008). Additional native species have been outplanted in the lowland coastal area between Wai‘ale‘ia Stream and Ka‘aia. These include ‘ko‘oko‘olau, globe schiedea, and ohe makai, as well as several threatened and endangered species.

Coastal Spray Area—766 acres. Compared to other coastal areas throughout the main Hawaiian Islands, the coastal spray area at Kalaupapa NHP supports a diverse and extensive native coastal vegetation community. For this reason, the coastal spray area of the eastern coast of the Kalaupapa peninsula has been identified as a Special Ecological Area. The relatively intact nature of this area is largely due to the minimal amount of human contact in this environment (Canfield 1990). However grazing by ungulates, cultivation practices, the introduction of alien vegetation, and other activities have altered the vegetation that historically occurred here.

Two lichens, two ferns, and 66 flowering plant species have been identified in this area. Of this total, 25 species are native. Nonnative species comprise the

largest percentage of the plants in the coastal spray area. Fourteen nonnative species documented in the coastal spray zone are considered noxious by the state Department of Agriculture (DOA). Nonnative plants are concentrated along the roadsides in the area; the most abundant nonnative plants in the zone are Bermuda grass (*Cynodon dactylon*) and Henry’s crabgrass (*Digitaria adscendens*). Mau‘u ‘aki‘aki are the most common native species.

Offshore Islets—9.1 acres. The offshore islets “represent the last strongholds where some of the rarest lowland and coastal plant species in the archipelago occur in natural populations” (Wood 2008). Both Huelo and ‘Ōkala islets support unusual relict vegetation and rich native species diversity. However, the native flora on the offshore islets is threatened by competition with nonnative plant taxa, landslides, possible rat predation (only ‘Ōkala), and loss of reproductive vigor.

Approximately 24 native plant taxa have been recorded on Huelo Islet, of which 16 are endemic and eight are indigenous to the Hawaiian Islands. An additional 18 nonnative plants occur on the islet (Hughes et al. 2007; Wood 2008). Huelo is considered one of the most pristine natural areas in Hawai‘i, likely because it never supported permanent human occupants (NPS 1990a). Wood (2008) has described Huelo as the “most botanically significant islet in the Hawaiian chain” because it contains one of the two loulu coastal forests remaining in the Hawaiian Islands. The other loulu forest is located on the remote island of Nihoa.

The loulu forest on Huelo is approximately 20,000 square feet in size and is composed of an estimated 224 mature loulu trees. The trees form a dense canopy on the upper slopes and small cliff terraces of the islet (Wood 2001; Wood and LeGrande 2002; Wood 2008).

Along the borders of the palm forest, a diversified shrubland encircles the islet. This shrubland is dominated by ‘akoko (*Chamaesyce celastroides* var. *amplectens*). Several additional taxa of native shrubs, sedges, grasses, vines, and herbs occur in the shrubland and on the vertical basalt cliff walls (Wood 2008).

Numerous invasive plants, including lantana and sourbush, have been noted invading forest margins and upper cliff terraces on Huelo (Swenson 2008).

Huelo also supports several rare native plants. It is the only islet that has representatives of pāpala (Charpentiera) and the ‘pua ‘ala (*Brighamia rockii*, Table 4.2).The islet is also home to hoawa, Schiedea globosa, and the rare ‘ānaunau (*Lepidium bidentatum*) (Wood 2008).



Working in the *Pritchardia hillebrandii*, Molokai Islets. NPS photo.

On ‘Ōkala, roughly 33 native plant taxa have been recorded, of which 15 are endemic and 18 are indigenous to Hawai‘i. It has the highest native plant diversity of all the Hawaiian Islets. Twenty-six additional nonnative species occur on the islet (Hughes et al. 2007; Swenson 2008; Wood 2008). The predominant vegetation community on ‘Ōkala is a mixed native shrubland of low-stature species.

‘Ōkala is the only islet in the Hawaiian Islands that has the indigenous tree species keahi (*Nesoluma polynesianum*) or any member of the genus Tetramolopium. The endangered dwarf naupaka also occurs on the islet. ‘Ōkala supports other rare native plants, such as ko‘oko‘olau and kolomona (*Senna gaudichaudii*); however, several invasive plant species have established, including Christmas berry, java plum, lantana, and sourbush (Swenson 2008; Wood 2008).

Caves and Lava Tubes—Throughout the park, there are nearly 20 known lava tubes and caves. They are remnants of larger caves plugged by siltation, breakdown, or subsequent lava flow. Most of these caves are parts of three lava tube systems. The caves contain uninventoried flora and fauna, and also may contain cultural resources from past human use. Other caves may exist because the pāhoehoe lava characteristically forms roofed-over channels as it flows. There may also be caves in the cliffs above the peninsula, but they await discovery.

Terrestrial Wildlife

Vertebrates

The Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only terrestrial mammal considered native in the Hawaiian Islands. Frasher et al. (2007) detected Hawaiian hoary bat once within a forested area in the eastern portion of the North Shore Cliffs NNL. A second detection occurred just outside of Kalaupapa NHP at the Pālā‘au State Park picnic area. The entire park, however, was not surveyed during the inventory. According to park staff, Hawaiian hoary bat are active at dusk and dawn during the spring season at the summit of the Kalaupapa Cliff Trail, which is near the location of the second bat detection (Frasher et al. 2007).

Native birds, including kakawahie (*Paroreomyza flammea*), olomao (*Myadestes lanaiensis*), ou (*Psittirostra psittacea*), crested honeycreeper (*Palmeria dolei*), and the black mamo (*Drepanis funerea*), are all thought to be extinct—or in the case of the crested honeycreeper, extirpated—from Molokai and the park. ‘Īiwi (*Vestiaria coccinea*) is rarely seen on Molokai, however, it was sighted at Pu‘u Ali‘i in 2004 during the Hawai‘i Forest Bird Survey. Three native bird species (‘apapane, maui amakihi, and ‘Īiwi) and 12 nonnative bird species were detected during the surveys in 2005. The nonnative species present were barn owl (*Tyto alba*), black francolin (*Francolinus francolinus*), common myna (*Acridotheres tristis*), house finch (*Carpodacus mexicanus*), Japanese bush-warbler (*Cettia diphone*), Japanese white-eye (*Zosterops japonicus*), northern cardinal (*Cardinalis cardinalis*), nutmeg mannikin (*Lonchura punctulata*), red-billed leiothrix (*Leiothrix lutea*), skylark (*Alauda arvensis*), spotted dove (*Streptopelia chinensis*), and white-rumped shama (*Copsychus malabaricus*). Japanese white-eye was the most abundant species, and ‘Īiwi, barn owl, and skylark were the rarest species. All of these species had previously been observed in the park.

Three of the common migratory shorebirds—the Pacific golden plover, ruddy turnstone, and wandering tattler—are regularly observed at Kalaupapa, and occasionally sanderlings and bristle-thighed curlews are found foraging on the beaches. Seabirds typically found on the cliffs and offshore islets include black noddies, great frigatebirds, red-tailed tropicbirds, wedge-tailed shearwaters, and white-tailed tropicbirds (Table 4.2). The rare Hawaiian petrel (*Pterodroma sandwichensis*) was spotted several times in recent years flying around the park at night, but no nesting areas have been documented.

Few surveys have been conducted to examine the distribution of reptiles and amphibians at Kalaupapa NHP. Kraus (2005) found only stump-toed gecko (*Gehyra mutilate*) in the crater. This nonnative species is common on all the main Hawaiian Islands (McKeown 1996). Other reptiles and amphibians collected in the North Shore Cliff NNL include stump-toed gecko, house gecko (*Hemidactylus frenatus*), Indo-Pacific gecko (*Hemidactylus garnotii*), tree gecko (*Hemidactylus typus*), and rainbow skink (*Lampropholis delicata*). Moth skink (*Lipinia noctua*) was also collected from this area, but persists there only in small numbers. Cane toad (*Bufo marinus*) may also occur in this area. House gecko and mourning gecko (*Lepidodactylus lugubris*) are also abundant in the lowland coastal area (Kraus 2005). During the survey of Huelo Islet, Duvall (2000) collected specimens of the moth skink, which inhibits the leaf litter among the native loulu palms (Kraus 2005). Mourning gecko were also collected on the islet (Duvall 2000).

Introduced mammals include the feral ungulates (axis deer [*Axis axis*], goats [*Capra hircus*], pigs [*Sus scrofa*]), as well as mongoose (*Herpestes javanicus*), black rats (*Rattus rattus*), cats (*Felis catus*), and dogs (*Canis familiaris*). The feral ungulates are a significant threat to the natural resources at Kalaupapa NHP. Of these, axis deer are believed to be the most damaging. Throughout the Hawaiian Islands ungulate activity results in various impacts including land erosion; stream and reef siltation; spread of invasive plants and diseases; loss of native, threatened, and endangered plant and animal species; and degradation of native species’ habitat.

Both the National Park Service and the Department of Health carry a special Wildlife Control Permit, given by DOFAW, for controlling problem pig and deer within the park. The cooperative agreement between the NPS and DLNR includes guidance for managing feral animals within the park boundary. The NPS undertakes animal control activities to regulate feral animal control populations within fenced management units containing sensitive cultural or natural resources. All participants must possess a state hunting license and be a signatory on the permit, even if not bearing arms.

Invertebrates

Insect and invertebrate species lists for the park are the consequence of incidental surveys only. The most extensive list was created for the native forests of the Pu‘u Ali‘i area. Native invertebrates on this list include the Hawaiian happyface spiders (Theridion grallator), crickets (gryllids), flies (drosophilids),

tornatellinids (land snails), and succineids (land snails) (DOFAW 1991). Four species of achatinellid land snails have been reported near the Pu‘u Ali‘i NAR since 1972. Nonnative invertebrates are more common in the lowest elevations of the Pu‘u Ali‘i NAR, likely due to their association with feral animals. Unidentified slugs have been documented in the NAR. No other known invasive invertebrates were noted during the survey (DOFAW 1991).

The indigenous isopod *Australophiloscia societatis* was collected in a forested area of Wainahau Stream (Rivera et al. 2002). It is unknown which additional species of insects and other invertebrates are present within the Molokai Forest Reserve—rare species are known to occur in the vicinity. While no surveys for insects and invertebrates exist for the Coastal Spray zone, three rare bee species are known from the nearby Mo‘omomi Preserve. These may be present in coastal areas of Kalaupapa NHP. Opportunistic surveys on Huelo Islet collected three endemic species of moths including *Hyposmocoma* sp. (Cosmopterigidae), *Mestelobes* sp. (Crambidae), and *Philodoria* sp. (Gracillariidae). A single nonnative moth, *Erechthias minuscula* (Tineidae), was also collected (Bishop Museum 2008). A taxonomic list of invertebrate species occurring in the lowland coastal area does not exist, however Legrande (2002) noted the following arthropods during her survey: the leptogenys ant (*Leptogenys falcigera*), brine fly (*Ephydra millbrae*), and *Haematolocha rubescens* (Trematoda: Haematoloechidae).



Monk seals on the beach at Kalaupapa. NPS photo.

Table 4.2 below lists special status species (plants, birds, mammals, and invertebrates) thought to occur within Kalaupapa NHP. Records are collated from an “Assessment of Natural Resources and Watershed Conditions for Kalaupapa NHP” (Fung Associates and SWCA 2010). Species marked “C” indicate Candidate Species, or those that are actively being considered for listing as endangered or threatened under the Endangered Species Act; “E” denotes Endangered; “T”, Threatened; “SE” are those species listed as endangered by the State of Hawai‘i; and “SOC” are designated Species of Concern by the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service, due to species status and/or threats.

Aquatic Resources

Kalaupapa NHP contains several watersheds, associated streams, and marine coastal areas within the boundary. This park is one of the few in the national park system where water can be tracked from its source in the watershed down to the sea. The freshwater ecosystem within Kalaupapa also includes palustrine (wetland), lacustrine (lake), and riverine (river) habitats, along with ephemeral ponds.

Watersheds

Three watersheds—Waihānau, Wai‘ala‘ia, and Waikolu—lie mostly within Kalaupapa NHP. The watersheds bear the names of their principal drainages.

Waihānau watershed drains Waihānau Valley, Kauhakō Crater, the west half of the peninsula including Kalaupapa Settlement, and the Nihoa area to the west park boundary. A single well in Waihānau Valley supplies water to the residents of Kalaupapa. The watershed’s principal drainage, fed solely by surface runoff, is the intermittent Waihānau Stream, which descends from the back of the valley and skirts the south side of the settlement. The stream is diverted near its headwaters by the DHHL, causing it to be dry for most of the year (GK & Associates 1991). Data from NPS gauges indicates that the stream only flows 4% of the time near the mouth of the stream.

Wai‘ale‘ia watershed drains Wai‘ale‘ia Valley and the eastern half of the peninsula, including Kalawao. Its principal drainage is Wai‘ale‘ia Stream, another intermittent stream fed only by surface runoff. This stream only flows 37% of the time, with no diversions or wells extracting water within the watershed.

Table 4.2 Special Status Species

Species Name	Common Name	Status	Organism	Park Locality
<i>Chelonia mydas</i>	Green sea turtle or honu	T	marine reptile	Marine
<i>Megaptera novaeangliae</i>	Humpback whale or kohola	T	marine mammal	Marine
<i>Monachus schauinslandi</i>	Monk seal or ‘ilio holo i ka uaua	E	marine mammal	Marine
<i>Lasiurus cinereus semotus</i>	Hawaiian hoary bat	E	terrestrial mammal	Cliffs and Pala‘au
<i>Manduca blackburni</i>	Blackburn’s sphinx moth	E	insect	Unknown
<i>Megalagrion pacificum</i>	Pacific Hawaiian damselfly	E	insect	Waikolu
<i>Myadestes lanaiensis</i>	Molokai thrush or oloma‘o	E	avifauna	Pu‘u Ali‘i
<i>Paroreomyza flammea</i>	Molokai creeper or kākāwahie	E	avifauna	Pu‘u Ali‘i
<i>Pterodroma sandwichensis</i>	Hawaiian petrel	E	avifauna	Pu‘u Ali‘i
<i>Puffinus auricularis newelli</i>	Newell’s shearwater	T	avifauna	Pu‘u Ali‘i
<i>Vestiaria coccinea</i>	‘i‘iwi	SE	avifauna	Pu‘u Ali‘i
<i>Bidens wiebkei</i>	ko‘oko‘olau	E	plant	Cliffs
<i>Brighamia rockii</i>	pua‘ala	E	plant	Islets
<i>Canavalia molokaiensis</i>	‘āwikiwiki	E	plant	Pu‘u Ali‘i
<i>Centaurium sebaeoides</i>	Lavaslope centaury or ‘āwiwi	E	plant	Coastal
<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i>	‘oha wai	E	plant	Pu‘u Ali‘i
<i>Cyanea dunbarii</i>	hāhā	E	plant	Forest Reserve
<i>Cyanea procera</i>	hāhā	E	plant	Pu‘u Ali‘i

Species Name	Common Name	Status	Organism	Park Locality
<i>Hedyotis mannii</i>	pilo	E	plant	Pu‘u Ali‘i
<i>Hesperomannia arborescens</i>	-----	E	plant	Pu‘u Ali‘i
<i>Hibiscus arnot-tianus</i> ssp. <i>immaculatus</i>	-----	E	plant	Forest Reserve
<i>Melicope reflexa</i>	alani	E	plant	Pu‘u Ali‘i
<i>Panicum fauriei</i> var. <i>carteri</i>	Carter’s panicgrass	E	plant	Kukaiwaa Peninsula
<i>Peucedanum sandwicense</i>	makou	T	plant	Islets
<i>Phyllostegia hispida</i>	-----	E	plant	Pu‘u Ali‘i
<i>Phyllostegia mannii</i>	-----	E	plant	Pu‘u Ali‘i
<i>Plantago princes</i> var. <i>laxiflora</i>	kuahiwi laukahi		plant	Pu‘u Ali‘i
<i>Platanthera holochila</i>	-----	E	plant	Pu‘u Ali‘i
<i>Ranunculus mauiensis</i>	makou	C	plant	Pu‘u Ali‘i
<i>Scaevola coriacea</i>	dwarf naupaka	E	plant	Islets
<i>Sesbani tomentosa</i>	‘Ōhai	E	plant	Nursery and outplanting locations along east coast of Kalaupapa Peninsula
<i>Stenogyne bifida</i>	-----	E	plant	Pu‘u Ali‘i
<i>Tetramolopium rockii</i> var. <i>rockii</i>	-----	T	plant	Coastal
<i>Zanthoxylum hawaiiense</i>	a’e	E	plant	Pu‘u Ali‘i

Waikolu watershed drains Waikolu Valley and is a major water resource for the island of Molokai. Its principal drainage, the perennial Waikolu Stream, is fed by surface water, perched aquifers, and water retained by subsurface dikes. Since 1960, Molokai Irrigation System has diverted water from Waikolu to serve agricultural customers and acreage in central Molokai. By state statute, Molokai Irrigation System must reserve two-thirds of the water drawn from Waikolu for Hawaiian homesteaders (Santo 2001). Molokai Irrigation System has drilled six wells in the Waikolu area beginning in 1971 and continuing into the mid-1990s to supplement water extracted from the diversion dams (State of Hawai‘i, Division of Water and Land Development 1994). The water is transported through the 5.1-mile Waikolu Tunnel (Brasher 1996) at a rate of roughly 4.5 million gallons per day (Way et al. 1998). Molokai Irrigation System stores 1.4 billion gallons from Waikolu stream in the Kualapu‘u Reservoir on topside Molokai (State of Hawai‘i, Division of Water and Land Development 1994).

Water diversion is known to have adverse impacts on native fauna, which have been documented at Waikolu Stream (Brasher 2003). Consequently, the existing diversion of stream water is a factor that must be weighed in assessing resource management options at Kalaupapa NHP.

Aquatic Habitats

Streams

Streams or riverine habitats are surface waters that flow downslope either perennially or intermittently. Perennial streams flow year-round and can be either continuous or interrupted with dry sections during certain times of the year (Polhemus 1992). The mouth of the stream, however, is flowing constantly throughout the year, whereas intermittent streams contain flowing water for only part of the year. Biologically, intermittent streams usually lack all of the fish species present in perennial streams (Cowardin et al. 1979).

Eight named streams plus two unnamed streams occur within the boundaries of Kalaupapa NHP (Table 4.3 and Figure 4.3). The principal drainages include Waikolu, Wai‘ale‘ia, and Waihānau streams. Waikolu and Waihānau streams were identified as a “Candidate Streams for Protection” in the Hawai‘i Stream Assessment (Hawai‘i DLNR Cooperative Park Service Unit 1990). In 1993, Waikolu Stream was listed as eligible for Wild and Scenic River designation and included in the National Rivers Inventory. See appendix D for additional Wild and Scenic River analysis of Waikolu Stream.

On the eastern edge of the park, there are several streams which are at least partially within Kalaupapa. Wainēnē, Anapuhi, Waiohookalo, and two unnamed streams have headwater sections that are within the park, although these may be seasonal or intermittent. All these streams provide aquatic habitat and are considered perennial by the state (though “perennial” may mean only permanent pools and not a continuous flow to the sea along the entire watercourse).

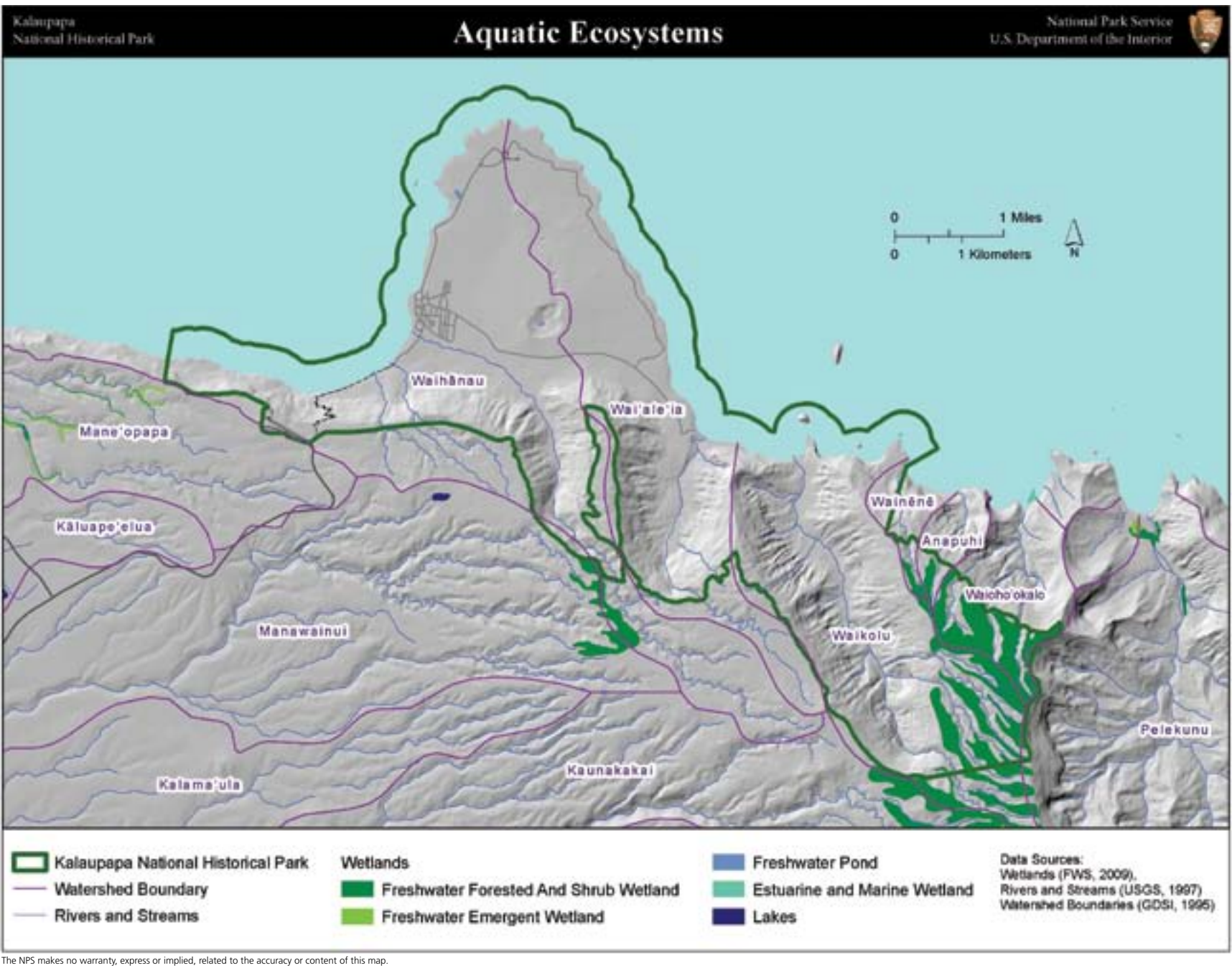
Table 4.3 Streams

Stream Name	Length (miles)	Watershed	Notes
‘Awahua	1.7	Waihānau	Only lower reach within Kalaupapa
Pūwāhi/Keōlewa	3.3	Waihānau	Only lower reach within Kalaupapa
Waihānau	8.4	Waihānau	Mostly within Kalaupapa except for headwaters
Wai‘ale‘ia	5.9	Wai‘ale‘ia	Mostly within Kalaupapa except for headwaters
Waikolu	15.8	Waikolu	Mostly within Kalaupapa except for headwaters
Wainēnē	1.3	Wainēnē	Only partially within Kalaupapa
Anapuhi	1.2	Anapuhi	Only headwaters within Kalaupapa
Waioho‘okalo	5.1	Waioho‘okalo	Only headwaters within Kalaupapa
Unnamed	0.3	Keawanui	Only headwaters within Kalaupapa
Unnamed	0.5	Ka‘ili‘ili	Only headwaters within Kalaupapa

Source: Table modified from Fung Associates and SWCA 2010

Wetlands

Palustrine habitats are still, non-tidal wetlands that are usually less than 6 feet deep (Cowardin et al. 1979). They may be located coastally or inland, and at high or low elevations. There are approximately six wetland classes that have been identified within the park. One is in the coastal area, and the remaining five wetlands are in Waihānau Valley and the Pu‘u Ali‘i Natural Area Reserve (NAR) (Cowardin et al. 1979; Fung Associates and SWCA 2010). The majority of palustrine wetland area is in the Pu‘u Ali‘i NAR with approximately 645 acres at elevations ranging from 2,500 to 4,222 feet. The actual presence of these upper elevation wetland classifications, however, “has not been confirmed in the field” (Fung Associates and SWCA 2010).



The NPS makes no warranty, express or implied, related to the accuracy or content of this map.

The one coastal seasonal wetland (2.2 acres) occurs between Kalaupapa Settlement and the airport. Due to the low elevation and drainage pattern, it floods during periods of high rain. Road construction in the 1970s is believed to have cracked the water table in this area, decreasing its natural holding capacity (Wyban 1993). At times the salt content in these wetlands rises above that of a typical river or lake, so it is not clear whether they are true freshwater wetlands.

Lake Kauhakō

Lake or lacustrine habitats are still waters in basins with a depth exceeding 6 feet. Natural lacustrine habitats are rare in Hawai‘i, with only four naturally formed freshwater lakes known to exist (Polhemus 1992). Notable among these is Lake Kauhakō, which lies at the bottom of Kauhakō Crater’s inner pit on the Kalaupapa peninsula.

With a depth estimated at 814 feet, Lake Kauhakō is the fourth deepest lake in the United States. It has the greatest relative depth (ratio of depth to surface area) of any lake in the world, with a surface area of approximately 37,675 square feet (Donachie et al. 1999). Brackish water near its surface transitions to marine water at depths greater than 10 feet (Maciolek 1975; Donachie et al. 1999), therefore in technical terms it is not a true freshwater lake. However, there is no recent evidence to suggest that Lake Kauhakō has an open connection to the sea, even though it sits at sea level and is in close proximity to the Pacific Ocean.

Ponds

An anchialine pool exists within the park to the east of ‘Īliopi‘i beach and was historically modified for use as a fishpond (Wyban 1993). The fishpond is no longer maintained, although some concrete structures remain in the vicinity. Wyban (1993) suggested that the pond, named ‘Īliopi‘i Pond, was constructed early in the 20th century by a doctor living on the peninsula. The brackish pond measures 164 feet in diameter. Historically, this pond may have been as large as 984 feet by 492 feet, but road construction has since split the water body in two. Hawaiians traditionally modified wetlands by constructing fishponds and cultivating taro (U.S. Fish and Wildlife Service 2007), and there are limited indications that Īliopi‘i Pond may have been built on the site of an ancient fishpond that was formerly connected to the ocean by an ‘auwai kai (saltwater channel).

Aquatic Wildlife

Waikolu Stream contains five native diadromous fish species, native snails, and shrimp that spend part of their early life cycle in the ocean before returning to the stream as juveniles.

The lower reaches of Waikolu Stream contain a plentiful and diverse group of native animals (Table 4.4). This portion of the stream provides habitat for all five native fish species or o‘opu (*Awaous guamensis* [o‘opu nakea], *Sicyopterus stimpsoni* [o‘opu nopili], *Lentipes concolor* [o‘opu alamo‘o]; *Eleotris sandwicensis* [o‘opu akupa], and *Stenogobius hawaiiensis* [o‘opu naniha]). Waikolu Stream is home to one of the highest densities of these stream gobies in Hawai‘i and also supports a large population of the native Hawaiian stream snail or hihiwai (*Neritina granosa*).

Hawaiian stream insects primarily inhabit the algae or moss mats on rocks wetted by the stream and include several endemic damselfies and the green darner dragonfly. The North American net-spinning caddisfly (*Cheumatopsyche pettiti*) has also become an important part of the diet of native stream fish (Konratieff et al. 1997).

Organisms in the coastal wetland and riverine habitats at Kalaupapa NHP include insects such as the introduced dragonfly (*Orthemis ferruginea*) and an introduced aquatic backswimmer (*Anisops kuroiwae*) (Evenhuis and Eldredge 1999). Historically it is believed that the ‘ama‘ama or striped mullet (*Mugil cephalis*) and the āholehole or Hawaiian flagtail (*Kuhlia sandvicensis*) were raised in the fishpond (Wyban 1993). The vegetation in and surrounding the fishpond, which is to the east of ‘Īliopi‘i beach, is primarily nonnative sourbush. The isolated plants and animals in Lake Kauhakō appear restricted to its shallow surface layer: nutrients in the upper 10 feet support a dense and highly productive phytoplankton community (Maciolek 1982; Donachie et al. 1999; Halliday 2001). Invertebrates in the lake include the native paleomonid shrimp (*Palaemon debilis*), which is exceedingly abundant and is common in anchialine pools throughout Hawai‘i (Mitchell et al. 2005). Maciolek (1982) noted that the endemic ‘opae ‘ula or red anchialine shrimp (*Halocaridina rubra*) were observed in the lake historically, but has not been recently seen. Insects around the lake include an introduced aquatic backswimmer (*Anisops kuroiwae*), shore fly (*Ephydrid*) larvae, beetles (*Coleoptera*), and damselfly (*Zygoptera*) larvae (Evenhuis and Eldredge 1999). In 1995, a single damselfly (*Megalagrion xan-*

Table 4.4 Characteristic Stream Animals

Hawaiian, Common Name(s)	Scientific Name	Origin	Stream Location			
			Waihānau	Wai‘ale‘ia	Waikolu	Waiohookalo
Fishes (Gobies)						
‘o‘opu nākea	<i>Awaous guamensis</i>	I		X	X	X
‘o‘opu akupa	<i>Eleotris sandwicensis</i>	E			X	
āholehole	<i>Kuhlia sandvicensis</i>	E			X	
‘o‘opu ‘alamo‘o, ‘o‘opu hi‘ukole	<i>Lentipes concolor</i>	E		X	X	X
‘o‘opu nōpili	<i>Sicyopterus stimpsoni</i>	E		X	X	X
‘o‘opu naniha	<i>Stenogobius hawaiiensis</i>	E			X	
Crustaceans						
‘ōpae kala‘ole	<i>Atyoida bisulcata</i>	E		X	X	X
‘ōpae ‘oeha‘a	<i>Macrobrachium grandimanus</i>	E			X	
Tahitian prawn	<i>Macrobrachium lar</i>	N		X	X	
Mollusks						
lymnaeid snail	<i>Lymnaeid sp.</i>	N			X	
hīhiwai	<i>Neritina granosa</i>	E		X	X	X
Amphibians						
cane toad	<i>Bufo marinus</i>	N		X		
Insects						
green darner dragonfly	<i>Anax junius</i>	I			X	
	<i>Limonia advena</i>			X	X	
Blackburn’s damselfly	<i>Megalagrion blackburni</i>	E			X	X
beautiful Hawaiian damselfly	<i>Megalagrion calliphya</i>	E			X	
Hawaiian upland damselfly	<i>Megalagrion hawaiiense</i>	E		X	X	X
blackline Hawaiian damselfly	<i>Megalagrion nigrohamatum nigrolineatum</i>	E			X	
Pacific Hawaiian damselfly	<i>Megalagrion pacificum</i>	E		X	X	
orangeblack Hawaiian damselfly	<i>Megalagrion xanthomelas</i>	E	X		X	
Origin: E = Endemic, I = Indigenous, N = Nonnative.						

Source: Riverine Habitats from Fung Associates and SWCA, 2010



Top: Waihānau stream beneath the bridge into the Kalaupapa Settlement. Bottom: NPS scientist measuring flow rate in Waihānau stream. NPS photos.

thomelas, a candidate endangered species) larva was seen along the margins of the lake but no adults have been observed or collected since.

Marine Resources

Kalaupapa NHP’s seaward boundary extends one-quarter mile offshore. Two distinct marine habitats, the intertidal zone and the coastal reefs, lie inside the boundary. Park waters shelter the endangered Hawaiian monk seal and humpback whale, the threatened green sea turtle, protected marine mammals such as the Hawaiian spinner dolphin, and well-preserved reef communities of coral, fish, and invertebrates. The ocean portion of the park also includes two islets, ‘Ōkala and Huelo, which serve as seabird sanctuaries, and one rocky pinnacle, Nāmoku, on the northwestern section of the peninsula.

Marine Habitats

Intertidal Zone—The intertidal zone wraps around the peninsula to cover a total area of 0.22 square miles. Like other exposed northern shores throughout Hawai‘i, it includes sandy beaches, cobble and boulder beaches, sea cliffs, raised benches, and tide pools. The eastern portion, from the mouth of Waikolu Stream to Kahi‘u Point, is exposed to trade wind-driven waves; it is a high-wave-energy area with steep high cliffs and basalt boulder beaches. The western half, from Kahi‘u Point to ‘Awahua Beach, is characterized by medium wave energy during most of the year, lower cliffs, and sandy beaches (Eichenlaub 2001; Minton and Carnevale 2006). However the western half experiences the highest wave energy during the northwestern winter swells.

Coastal Reef—About 2.9 square miles of coastal reef lie in park waters. This habitat is composed mainly of coral reef communities on hard bottoms and sandy bottoms to a depth of 130 feet. Reef life here must withstand not only the northeast swells generated by trade winds that blow about 75% of the time, but also the larger North Pacific swells generated by winter storms (Aucan 2006). The hard-bottom habitat is dominated by large basalt boulders and basalt pavement with individual coral colonies dotting the seascape. In general, the marine species are typical of coastal reef environments, but occasionally pelagic species are observed within the one-quarter mile boundary due to the proximity of deep oceanic waters.

Marine Life

A small population of endangered monk seals (*Monachus schauinslandi*) hauls out on local beaches to give birth (“pup”), molt, or rest. Monk seals are increasing in numbers in the main Hawaiian Islands, and the population at Kalaupapa is one of the larger populations outside of the Northwestern Hawaiian Islands. The main Hawaiian Islands population is estimated at around 152 individuals, 10% of which are found at Kalaupapa (Baker et al. 2011). Threatened green sea turtles occur in the park where they forage and nest when beach conditions are suitable. Endangered humpback whales transit through the park boundaries from December to May each year.

The intertidal habitat at the park supports 326 known species in an invertebrate community that is similar to that of other windward intertidal zones in the Hawaiian Islands (Godwin and Bolick 2006). Arthropods are the most prevalent group and more than half of these are decapod crustaceans. 95 species of mollusks—mostly gastropod snails—are known to be present. Minton and Carnevale (2006) note that “Hawaiian opihi [at Kalaupapa] are numerous and large, among the largest observed in the main eight Hawaiian Islands.” Echino-



Pocillopora edyouxi coral. NPS photo.

derms are abundant and diverse; researchers discovered two new species of sea cucumber at the park in 2004 (Godwin and Bolick 2006).

Introduced species in park intertidal waters include nine invertebrates and the spiny red algae Acanthophora spicifera; these species are present elsewhere in Hawai‘i. None are considered invasive by Godwin and Bolick (2006).

The coastal coral reef communities at Kalaupapa are dominated by turf algae (69% of the area), corals (9%), fleshy macroalgae (8%), sand (8%), and coral-line algae (5%). A total of 28 coral species are known to inhabit park reefs. The dominant species are cauliflower (*Pocillopora meandrina*), lobe (*Porites lobata*), sandpaper rice (*Montipora patula*), rice (*M. capitata*), and antler (*Pocillopora eydouxi*) corals. These five species represent 91% of the coral cover observed in the coastal reefs at Kalaupapa NHP.

Among the 39 macroalgal species identified to date at the park, the dominant species are fleshy red algae (Rhodophyta), the brown algae (*Padina australis*, *Lobophora variegata*, and *Dictyota acutiloba*), and blue-green cyanobacteria.



Volunteers assist park staff in removing invasive seaweed. NPS photo.

A total of 143 marine fish species are known in park waters. More species occur over the coral reef than over sandy areas (Beets et al 2006). The territorial black fin chromis (*Chromis vanderbilti*), which feeds on plankton, accounts for 58% of all individuals. The top 10 most abundant species are primarily damsel fishes (family Pomacentridae) and surgeonfishes (family Acanthuridae). Both species of introduced snappers—ta‘ape (*Lutjanus kasmira*) and to‘au (*L. fulvus*)—are present on the coastal reefs in low numbers, as well as the introduced grouper, roi (*Cephalopholis argus*).

Kalaupapa has one of the healthiest fish populations in the eight main islands of Hawai‘i, probably because fishing pressure is relatively light. Fish populations at Kalaupapa are similar in terms of numbers and size to some of the fish communities in the remote Northwestern Hawaiian Islands (Friedlander et al. 2008).

Contemporary Resource Use

Fisheries

National Park Service regulations apply in the marine area of the park – from the mean high water mark to ¼ miles offshore. Pursuant to the park’s enabling statute, the NPS regulations covering fishing or the use of other wildlife resources do not apply to the patients. Except of as provided in 36 CFR 2.3, the NPS has adopted the State of Hawai‘i fishing laws and regulations. In addition, State of Hawai‘i fishing laws and regulations apply as a matter of state law. The Superintendent of the park may impose additional use limits or closures within the marine area of the park. Also, NPS law enforcement rangers who are deputized by the County of Kalawao may enforce County laws within the boundaries of the park. Fishing rules and regulations vary for patients, employee residents (kōkua), and visitors.

Pursuant to DOH regulations, Patients are exempt from state laws regarding gear type, seasonal closure, bag limits, and size limits. Community sentiment, however, opposes the sale of any fisheries catch, especially outside of the settlement. Community rules specifically prohibit employees from scuba diving except on behalf of the NPS marine research program.

Pursuant to DOH regulations, visitors on boats may not fish or even travel within the county or park boundaries unless they are sponsored by patients or kōkua of Kalaupapa. If sponsored they must follow state law regarding seasonal

closures, bag limits, gear types, and size limits. These more modern fishing practices, however, are discouraged by patients and kōkua and viewed as disrespectful of the stewardship ethic that is currently in place. It should be noted that commercial activities within the park boundary, such as charter dive boats and fishing vessels, are subject to the requirements of the park’s enabling legislation which states that patients have a “first right of refusal to provide revenue-producing visitor services” (Public Law 96-565, Section 107).

Pursuant to DOH regulations, onshore visitors must have a park-based sponsor. Visitors may only pole fish from shore and they may not use nets or spears, pick ‘opihi (Hawaiian limpets), or scuba dive at any point on Kalaupapa/Makanalua peninsula. The current rule limits outside visitors from most fishing activities and picking ‘opihi (See Appendix G: Instructions for Visitors).

Hunting and Gathering

The State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has jurisdiction over recreational/subsistence hunting above 500 feet in the park. This area encompasses the designated Molokai Forest Reserve and Pu‘u Ali‘i Natural Area Reserve. Anyone with a valid state of Hawai‘i hunting license may hunt in this area.

Pursuant to DOH regulations, Patient and worker residents are allowed to gather plant resources for lei, medicine, ceremonies, and cultural and community events. Guidelines and/or a permit process have not yet been established for subsistence plant collecting or gathering plant materials for cultural use. Visitors are prohibited from gathering plants within the park.

Pursuant to DOH regulations, Patient and worker residents of Kalaupapa are allowed to collect salt. Visitors are allowed to pick salt but may only do so in the company of their sponsor, who must either be a patient or worker resident. This is because the salt picking areas are beyond the boundaries of where visitors may travel without an escort. No bag size or other limits have yet been set on salt collecting, though salt may not be sold or sent out of Kalaupapa for sale.

Fishing and salt collecting are areas of special concern for the patients because they have seen past abuses by visitors, kōkua, and by some patients themselves. The perception among patients and others who fish is that there are fewer fish now than there were fifteen years ago (Langlas 2006).

Threats and Stressors

The primary threats and stressors to the park’s ecosystems include natural events and human-related impacts. Natural events such as earthquakes, hurricanes, tsunamis, fire from lighting, landslides, and severe storms are typically acute disturbances that can alter ecosystems over a short time period. Most of these disturbances are random events that are difficult to predict.

Human-related impacts such as the introduction of invasive species, diseases and pathogens, habitat loss/degradation, pollution, fire, diversion of water, excessive resource use, and changes to local weather patterns as a result of global climate change (see section below on climate change) tend to be chronic influences over longer time periods. Many of these disturbances are currently occurring and can be mitigated to some degree through management activities.

Invasive species are recognized as a major threat to native ecosystems and to the survival of threatened and endangered species (Pimental 2005). Invasive species compete with native flora and fauna, carry diseases, affect trophic structure, change fire regimes, alter nutrient cycling patterns, modify surface runoff of water, and alter biodiversity (Vitousek 1990; D’Antonio and Vitousek 1992; Vitousek 1992; Belt Collins Hawai‘i Ltd. 2008). At Kalaupapa NHP the invasive species are separated into categories, including feral ungulates, nonnative plants, and small nonnative mammals.

Many of the threats and stressors mentioned previously work synergistically to impact the ecosystems. For example, soil erosion by rilling and gullyng is exacerbated through disturbance by feral animals or indirectly by the reduction in the protective cover of native vegetation. Reduced cover by herbaceous plants in turn increases soil-raindrop impact, increasing the amount of sedimentation in runoff water. Wild fire has not occurred in recent memory and the abundance of nonnative plants has created an enormous fuel load, presenting a threat to buildings and remnant pockets of native vegetation in coastal areas and in Kauhakō Crater. Most of the threats and stressors can be mitigated at the local level.

Climate Change

Scientific research shows that global climate change is underway. Climate change is defined as “a change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (United Nations Framework Convention on Climate Change 1992). As this alteration to the atmosphere accelerates, scientists race to collect and analyze a ceaseless and ever-changing stream of interrelated data. While they can now identify and predict some impacts of climate change, other potential effects remain poorly understood or unrecognized. The future impacts will depend on how fast temperatures change, and whether human society can mitigate emissions of greenhouse gases before earth’s ecosystems reach critical thresholds.

This is a far-reaching and long-term issue that will affect Kalaupapa NHP’s resources, visitors, and management far beyond the 15- to 20-year timeframe of this general management plan. In preparing this plan for Kalaupapa NHP, NPS seeks strategies to minimize the park’s contribution to climate change, and maximize the park’s ability to adapt to climate change impacts.

Regional and Local Projections

According to a 2009 report by the United States Global Change Research Program (USGCRP), major impacts on island regions will include reduced availability of freshwater, coastal inundation due to sea-level rise and coastal storms, and disruption of traditional tourism due to changes in coastal and marine ecosystems. In the Pacific Island region, residents can also expect hotter weather, more frequent heavy downpours, and larger amounts of rain in the summer (USGCRP 2009).

Since 1993, average and maximum air temperatures on the peninsula have increased, accompanied by more extreme patterns of hotter summers and cooler winters. There has also been a slight decrease in overall rainfall since 1993, and in recent years there have been extended dry periods (e.g. 2003 and 2012) followed by heavy rains (NPS 2013). In the future, it is anticipated that precipitation will decline further due to the restriction in cloud formation from the increased frequency of the trade wind inversion layer in Hawai‘i (Cao et al.

2007). Another area of concern is storm frequency and extreme precipitation events, which are both expected to increase in certain areas of Hawai‘i, despite the decrease in overall annual precipitation (Chu, Chen, and Schroeder 2010). Ultimately, these changes in local weather patterns will alter climate in Hawai‘i, and thus affect upland forest characteristics, groundwater resources, and surface stream flow (Giambelluca et al. 2008).

Sea surface ocean temperatures recorded by the National Marine Fisheries Service (NMFS) for Koko Head, Oahu (1956–92) and corrected Integrated Global Ocean Services System—National Meteorological Center (IGOSS–NMC) at the same location (1992–2012) indicate that overall temperatures have increased by more than 0.5°C since 1956. Ocean cooling has occurred since 2005, and this has been corroborated by temperature meters within the park. Over a longer time period, however, ocean temperatures are expected to continue rising due to increased CO₂ emissions and the concomitant increase in atmospheric temperatures (Intergovernmental Panel on Climate Change [IPCC] 2007).

Ocean chemistry is expected to change with increasing CO₂ emissions (IPCC 2007). In particular, pH is expected to decrease resulting in more acidic conditions and negatively impacting organisms (e.g. corals, mollusks, sea urchins, etc.) that secrete a calcium carbonate skeleton. The latest projection is that by 2050, coral reef ecosystems will reach a tipping point and corals will be unable to calcify and grow (Hoegh-Guldberg et al. 2007). Kalaupapa began monitoring pH in 2009 as part of the Pacific Island Network Inventory and Monitoring Program, but to date no temporal pattern has emerged.

Since Kalaupapa is a coastal park, sea level rise may inundate low-lying natural and cultural resources such as nesting and nursing habitat for threatened and endangered species, historic structures, and archeological sites. Higher storm tides may result in more frequent flooding, coastal erosion, and reduction in the freshwater lens. In addition, marine organisms such as corals that rely on light penetration will be negatively impacted by rising sea levels (Guidry and Mackenzie 2012). Globally, sea level is rising at the rate of 0.13 inches per year, although this rate has been accelerating in recent years (Church and White 2011). In Hawai‘i, sea level has risen over 5 inches since 1918 (Firing and Merrifield 2004). This rise in sea level is expected to accelerate in the future with melting of the polar ice caps and thermal expansion of the ocean with increasing water temperature.

Carbon Footprint of Kalaupapa NHP

In 2007, the NPS analyzed the carbon footprint of Kalaupapa NHP using a greenhouse gas emissions inventory model developed by the U.S. Environmental Protection Agency (EPA) and the NPS. The findings provided a rough initial look at the carbon footprint of Kalaupapa NHP and established a baseline against which future emissions could be measured. The results showed that purchased electricity is the largest contributor to greenhouse gases at the park. Emissions from solid waste disposal, stationary combustion, mobile combustion, refrigeration, and other greenhouse gas sources were significantly lower. The park will conduct future monitoring and analysis using the same Climate Leadership in Parks tool to compare results against the 2007 baseline.

Most of the data for the calculations was taken from existing reports and records. Data types included the amounts of electricity purchased, waste sent to the landfill, and fuels consumed. Road counter data and visitor use surveys provided additional information. Examples of data are shown in Table 4.5.

Table 4.6 Emissions Results by Sector: Metric Tons Carbon Dioxide Equivalent (MTCO₂E)

Park Unit	Stationary Combustion	Purchased Electricity	Mobile Combustion	Refrigeration	Waste	Other Green House Gas Sources	Gross Emissions
Park Operations	13	14	19	2	9	30	87
Visitors	0	0	4	0	0	0	4
State of Hawai'i	1	281	17	3	9	1	313
Contractors	0	4	7	0	3	1	16
Other Permitted Activities	0	17	17	2	0	0	36
Gross Emissions	14	316	65	8	21	32	456
Net Emissions*	14	316	65	8	21	32	
* Net Emissions = Gross Emissions - Carbon Sequestration							

Table 4.5 Purchased Electricity, Waste and Consumed Fuels, 2007

Stationary Combustion	4,694 gallons of diesel fuel to run a generator at the Pump Station that provides fresh water to all parties in the settlement
	495 gallons of diesel fuel used by DOH to run generators at the Kalaupapa Nursing Facility and State Kitchen during power outages
Purchased Electricity	1,365,200 kilowatt-hours of electricity, purchased from Maui Electric Company for the entire Kalaupapa Settlement
Mobile Combustion	26.98 metric tons of carbon equivalent (MTCE) due to purchased air travel
	2.5 MTCE due to helicopter use
	1.08 MTCE for air travel purchased by State of Hawai'i
Solid Waste	100.74 short tons annually

Visitor Use and Experience

The easiest and most affordable way to experience Kalaupapa NHP is to view it from the Kalaupapa Overlook at Pālā‘au State Park. There is no age restriction or limitation on numbers of visitors within Pālā‘au State Park. The majority of visitors to Kalaupapa drive to the overlook where there is ample parking, NPS interpretive exhibits with disabled access, hiking trails, and restroom facilities.

Visitation to the Kalaupapa peninsula requires an entry permit. The federal law that established the park allows the patient population to limit the total number of public visitors and to make other rules about park usage. Currently the visitor limit is set at 100 persons per day. Patient rules also prohibit access by anyone under the age of 16.

The state DOH controls and manages park access. State law requires all visitors to obtain a DOH permit three business days in advance in order to enter the settlement and the historical park. While anyone can view the park from overlooks within the park boundary or overhead flights, to get a DOH permit and gain physical access to Kalaupapa peninsula, a visitor must fall into one of the following categories:

Sponsored guest—Kalaupapa residents can sponsor family and friends as visitors. Residents who sponsor guests may be former Hansen’s disease patients, state employees, or NPS employees.

Commercially guided tourist—Damien Tours, the commercial tour vendor at the park, obtains permits for registered tour participants with the DOH.

Volunteer—Park volunteers are involved through NPS sponsorship and obtain permits through the DOH.

In calculating visitation numbers, the NPS considers overlook viewers at Pālā‘au as actual visitors. They constitute the vast majority of park visitors. Other viewers included in the visitor count are those who stop at Waikolu Overlook in the Molokai Forest Reserve, as well as people who view the park from helicopters.

Visitor Opportunities

Commercial Tours

The only official tour in the settlement is offered by Damien Tours, a company owned and operated by a patient. Tours are scheduled Monday through Saturday, 10am–1:30pm. Visitors arrive by plane, or on foot or by mule from the trail. Damien Tours picks them up and drops them off using re-purposed school buses. Tour guides escort the visitors around Kalaupapa and Kalawao. Stops along the way include Saint Marianne’s former gravesite, St. Francis Church in Kalaupapa, the Bookstore, Fuesaina’s Bar, the heiau along Damien Road, St. Philomena’s Church in Kalawao, and finally Judd Pavilion at Kalawao for a lunch break. Guides offer interpretive information at each stop.

The Kalaupapa Guided Mule Tour is a type of commercial tour that provides an alternative way to access the park and the settlement tour. The mule ride starts and ends outside park boundaries and coordinates with the Damien Tour. Visitors who engage the Kalaupapa Guided Mule Tour to access the park are offered informal interpretation at the mule ride headquarters and on the ride itself by the muleskinners. Each year the park issues a commercial use authorization to the mule ride.

Overnight Use

No overnight use by the general public is allowed. Overnight stays at Kalaupapa are restricted to sponsored guests of residents and are limited to a total of 13 days in a three-month period. The only lodging available is through the Department of Health Visitor Quarters. Current charges are \$10 per person per night. No campground facilities exist and patient rules do not allow camping anywhere in the settlement.

Visitor Facilities and Services

Visitor facilities at Kalaupapa NHP are quite limited. No restaurants are located in the park. The NPS approved commercial use authorization for mule ride operations offers boxed lunches to trail riders, but all other visitors must bring their own lunches. A small general store serves patients, park staff, and DOH employees, however the store is not accessible to tour participants. Sponsored visitors are only allowed to purchase a soda, juice, water, or candy.

Fuesaina’s Bar is always open when the Damien Tour Bus customers enter the park, and tourists may purchase soft drinks and snacks. Persons with proper identification can purchase beer and wine. The bar is open 4–8pm Monday, Wednesday, and Saturday, and also opens between the hours of 9 and 11 am for the bus tour. The park’s cooperating association, Pacific Historic Parks, operates a bookstore that is open Monday through Saturday, 10am–2pm, to coordinate with bus tour times.

No medical services are available to visitors. In emergency situations, on-call medical staff arrange an air ambulance service.

Opportunities for People with Disabilities

The Kalaupapa Overlook located inside the NPS boundary at Pālā’au State Park features an accessible, paved trail for wheelchair-bound persons. This overlook is accessible by vehicle. Parking for up to 60 vehicles, accessible restrooms, and a campground are provided and maintained by the state park.

Access to and around the peninsula is extremely difficult for those in wheelchairs. There are no chair lifts at the Kalaupapa, Hoolehua (topside), or Honolulu airports. The trail down the pali to Kalaupapa is completely inaccessible to persons with disabilities. The settlement tour requires people to get on and off the bus on their own, and the only public restroom with wheelchair access is at the airport, Paschoal Hall, and the Curatorial/Museum building. St. Philomena Church has a small metal entry ramp, but it is not ADA compliant, and one step must still be overcome to get inside the building. The bookstore is slated to have accessible ramps installed.

Hiking Opportunities

Visitors who are officially registered with Damien Tours can hike down the pali trail on their own and wait for the tour bus at the base. Topside, a short trail at Pālā’au State Park provides hiking access to the Kalaupapa Overlook through land that is part of the Kalaupapa NHP. Other hiking opportunities can be found topside with Molokai Museum and Cultural Center at the restored R. W. Meyer Sugar Mill, and with The Nature Conservancy (TNC) starting at Waikolu Valley. The TNC hike proceeds through Kamakou Preserve to the Pelekunu lookout.

Visitation Overview Total park visitation is calculated based on the following estimates:

- number of visitor permits granted by DOH
- number of visitors at the Kalaupapa Overlook at Pālā’au State Park
- number of other visitors, including jeep tours at Waikolu Overlook

Between 1996 and 2012, Kalaupapa Settlement averaged approximately 9,000 visitors per year (Figure 4.4). In 2010, visitor counts to Kalaupapa Settlement were low because of the high cost of airfare and a bridge washout on the pali trail that halted visitor access for several months. Between 1996 and 2012, Kalaupapa NHP averaged 59,000 visitors per year; this figure includes visits to the Kalaupapa Overlook at Pālā’au State Park (Figure 4.5). In 2009 and 2010, visitor counts to the Kalaupapa Overlook at Pālā’au State Park are low due to counting errors. According to state officials who track international and domestic arrivals to the islands, an average of 68,749 passengers per year arrived on Molokai between 2004 and 2010 (Figure 4.6).

Visitor Survey

In 2010 and 2011, a visitor study was conducted to more fully understand and document visitation to Kalaupapa NHP. The following information is the executive summary of the Kalaupapa NHP Visitor Study (Le and Hollenhorst 2011).

The report profiles a systematic random sample of Kalaupapa NHP (NHP) visitors on April 12, 2010 and from November 29, 2010 to February 7, 2011. A total of 386 questionnaires were distributed to visitor groups. Of those, 292 questionnaires were returned, resulting in a 75.7% response rate.

Group size and type—Sixty-five percent of visitor groups consisted of two people and 12% were in groups of four or more. Fifty-eight percent of visitor groups consisted of family groups.

State or country of residence—United States visitors were from 40 states, Washington D.C., and Guam, and comprised 86% of total visitation during the survey period, with 21% from Hawai’i and smaller portions from 39 other states, Washington D.C., and Guam. International visitors were from 12 countries and comprised 14% of total visitation.

Figure 4.4 Kalaupapa Settlement Annual Visitation 1996–2012

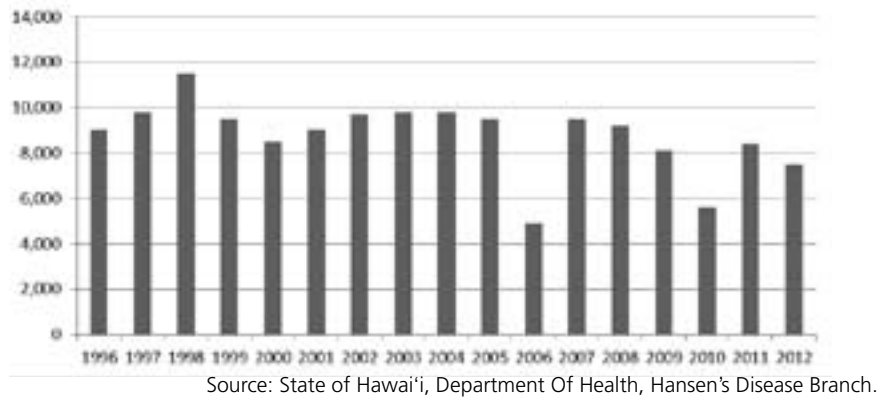


Figure 4.5 Kalaupapa NHP Annual Visitation, 1996–2012

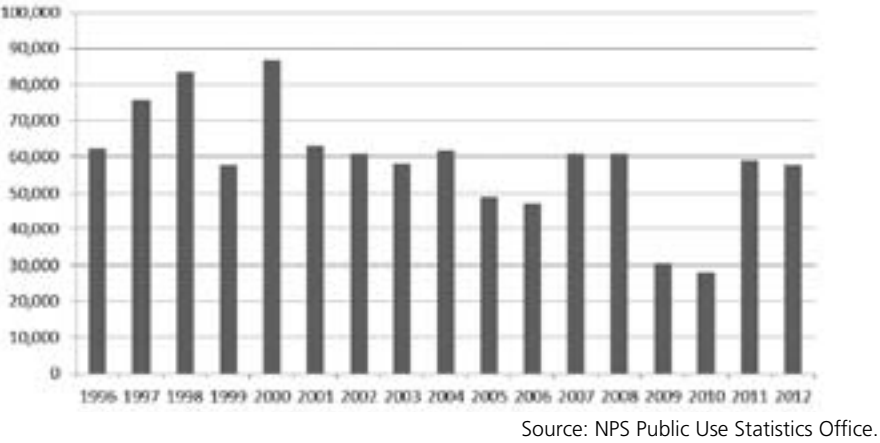
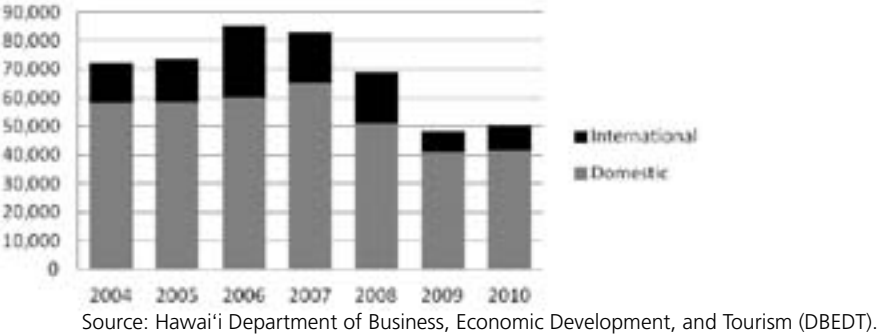


Figure 4.6 Molokai Domestic and International Arrivals, 2004–10



Frequency of visits—Eighty-seven percent of visitors were visiting the park for the first time in their lifetime.

Age, gender, ethnicity, and race—Forty-eight percent of visitors were aged 46–65 years, 3% were aged 15 years or younger, and 16% were 66 years or older. Fifty-six percent of visitors were female. Two percent were Hispanic or Latino. Eighty-nine percent of visitors were White and 9% were Asian.

Educational level and household income and size—Forty-four percent of respondents had completed a graduate degree. Eighteen percent of visitors had an income of \$100,000–\$149,000. Sixty percent of visitors had two people in their household.

Physical conditions—Eight percent of visitor groups had members with physical conditions that affected their ability to access or participate in activities and services.

Awareness of park prior to visit—Twenty-four percent of visitor groups were aware of park’s co-management by NPS and the State of Hawai’i Department of Health.

Information sources—Most visitors (88%) obtained information about the park prior to their visit through other websites (47%), and most (85%) received the information they needed. Sixty-nine percent of visitor groups would use the park website to obtain information for a future visit

How visit fit into travel plans—For 70% of visitor groups, the park was one of several destinations, and for 22%, the park was the primary destination.

Primary reason for visiting the area—Six percent of visitor groups were residents of Molokai. The most common primary reasons for visiting Molokai among non-resident visitor groups were to visit the park (37%) and visit other attractions on Molokai (35%). For 83% of visitor groups the primary reason for visiting the park was to learn about the general history of Kalaupapa peninsula.

Services used in nearby communities—Ninety-three percent of visitor groups obtained support services topside Molokai.

Transportation—Eighty-five percent of visitor groups used one vehicle to arrive at the park.

Overnight stays—Sixty-six percent of visitor groups stayed overnight at Kalaupapa NHP or topside Molokai, of which 50% stayed one night. Eighty-three percent of visitor groups stayed in lodges, hotels, motels, cabins, bed and breakfasts, etc.

Length of visit in park—The average length of visit was 4.5 hours. Forty-seven percent spent five or more hours in the park.

Activities on this visit—The most common activities were visiting historically significant sites at the park (69%), taking the Damien Tour (66%), and visiting Kalaupapa Overlook (64%).

Visitor services and facilities—The visitor services and facilities most commonly used by visitor groups were the restrooms (83%), Damien Tour (73%), and visitor center bookstore (60%).

Protecting park attributes, resources, and experiences—The cultural, natural, and scenic resources receiving the highest combined proportions of “extremely important” and “very important” protection ratings were scenic views (94%); natural features, such as wildlife, plants, and clean air (91%); and historic buildings associated with the Hansen’s disease settlement (88%).

Expenditures—The average visitor group expenditure (inside the park and topside Molokai) was \$2,212. The median group expenditure (50% of groups spent more and 50% of groups spent less) was \$1,716, and the average total expenditure per person (per capita) was \$1,089.

Preferred activities on future visit—Ninety-six percent of visitor groups were interested in tours/programs. Of those, 80% were interested in ranger-led programs and 69% in self-guided tours.

Topics and methods of learning about the park—Ninety-eight percent of visitor groups were interested in learning about the park on a future visit, of which 86% were interested in the history of the Kalaupapa and Kalawao settlements. Ninety-eight percent of visitor groups were interested in learning about the park features through ranger-led programs (84%), outdoor exhibits (79%), and indoor exhibits (70%).

Overall quality—Most visitor groups (74%) rated the overall quality of facilities, services, and recreational opportunities at Kalaupapa NHP as “very good” or “good.” Seven percent of groups rated the overall quality as “very poor” or “poor.”



Volunteers clear vegetation around gravesites. NPS photo.

Interpretation and Education

People who visit Kalaupapa NHP via a commercial tour or as sponsored guests can learn about the settlement’s history through tours, exhibits, and publications available on-site. Topside visitors enjoy wayside exhibits at Kalaupapa Overlook and at the top of the pali trail. Interested people elsewhere can explore Kalaupapa’s compelling story through the internet and various publications.

Kalaupapa NHP has limited educational staff assigned to interact with visitors and conduct outreach and education. NPS Cultural Resource

Management staff and one interpretive ranger specialist regularly provide interpretive programs to the public and groups about the history of Kalaupapa through presentations and formal exhibits. In addition, special tours exist for a variety of special interest groups and family members of Hansen’s disease patients who have passed away. The park currently lacks funding for a formal interpretive program.

Exhibits

Kalaupapa Overlook at Pālā‘au affords an excellent orienting view of the Kalaupapa peninsula, settlement, and sea cliffs surrounded by ocean. Wayside exhibits share information about Hansen’s disease, the unique history of the

settlement, and the pali trail. At Kalaupapa and Kalawao settlements, Kalaupapa Airport, and along Damien Road, wayside exhibits interpret structures and features significant to the area’s cultural history.

The bookstore displays items from the park’s museum collection and historical photographs. Visitors can buy theme-related books and souvenirs offered for sale by the nonprofit cooperating association, Pacific Historic Parks.

Exhibits are also available for visitors at Paschoal Hall, McVeigh Hall, and inside the St. Francis Catholic Church Social Hall.

Publications

The official NPS brochure is available to all visitors to Kalaupapa at the bookstore or at the staging area for the mule ride. Brochures are also available at the Molokai Visitors Bureau and by request via e-mail or regular mail.

Internet

Kalaupapa NHP maintains a web site (www.nps.gov/kala) and blog that provides information about Kalaupapa as well as a virtual tour of the park. The park releases frequent web-based announcements for special events and stories related to Kalaupapa NHP.

Education

Since children under the age of 16 are not allowed in the park, no official tours for school or youth groups are provided. Numerous state and local high school volunteer groups and religious groups visit Kalaupapa throughout the year to learn about the peninsula and its people and to provide community service, such as exotic plant removal and the introduction of native plant species. Park staff attend special youth events, such as Molokai High School’s annual career day and Earth Day events, and NPS offers associated educational programs and materials. Kalaupapa NHP employees are assigned to give specific outreach programs to a wide variety of organizations in Hawai‘i.

Access and Transportation

Transportation to Kalaupapa NHP is possible by foot, mule, or plane. A barge transports food and other goods to the community once or twice a year in late summer when the sea is calm. While a road system does exist on the peninsula, no roads link the peninsula to the rest of Molokai.

Roads

Roughly 9 miles of paved roads and 40 miles of unpaved roads thread through the peninsula portion of the park. Both personal and government vehicles are delivered to the peninsula by barge.

The paved roads permeate Kalaupapa Settlement and link it to the airport terminal. A gravel road (Damien Road) connects Kalaupapa to Kalawao. An unimproved road skirts the peninsula between Kalawao and the airport, and other unimproved roads follow the fence lines. On topside Molokai, travelers approach the upper rim of the park and the head of the pali trail via Kalae Highway (Hwy 470).

This Highway also delivers visitors to the very popular Kalaupapa Overlook, which is inside the park boundary. There is a parking area at the trail head to the overlook. The state DOT maintains the highway, which links Kalaupapa NHP and Pālā‘au State Park to the main town of Kaunakakai, about 10 miles away. Visitors arriving for the pali trail park on the highway shoulder and access the trailhead via an unimproved road through private land. NPS is responsible for maintaining the access road according to the terms of a memorandum of understanding with the landowner, R. W. Meyer Ltd.

Air

Kalaupapa is part of the federally subsidized Essential Air Service, a program which ensures that small communities receive a minimal level of scheduled air service at an affordable price. The Hawai‘i DOT maintains the airstrip and buildings at the Kalaupapa airport. Flights are scheduled from Honolulu, O‘ahu; Kahului, Maui; and Hoolehua, Molokai. The seven-minute flight from Ho‘olehua on topside Molokai occurs two to three times per day, weather permitting, and provides the main access in and out of Kalaupapa. The FAA restricts the size of aircraft authorized to land at Kalaupapa to nine-passenger planes or smaller.

An air freight company delivers to Kalaupapa throughout the week as needed. Mail is also delivered by contract air service, Monday through Saturday.

The park experiences frequent non-access related air traffic, including military helicopter use of the airport for training purposes and commercial scenic air tours. These overflights Commercial air tours and overflights at Kalaupapa must follow FAA rules that state an aircraft maintain an altitude of at least 1600 feet above ground level.

Trail

Visitors registered with Damien Tours are permitted to hike or ride mules down the steep 3.5-mile pali trail that links topside Molokai to the settlement. The trail has a 1,700-foot elevation change, 26 switchbacks, and is often muddy. It is a very strenuous hike and can be very slippery.

Kalaupapa Dock

In 2012 the NPS completed the stabilization and repair of the Kalaupapa dock, which ensures that vessels can continue to safely deliver supplies to Kalaupapa. Exposure to seawater and wave impact had caused extensive damage to the Kalaupapa pier and the bulkhead and breakwater were failing structurally. To ensure delivery of supplies essential to operate and maintain Kalaupapa via small barge, repairs and improvements were made to the bulkhead wall toe, dock toe, breakwater, and pier.



Left: Opening of Labor Day sports activities at Kalaupapa Pier, 1953. Kalaupapa Historical Society Photo Collection. Right: Restoration of Kalaupapa Pier, 2012. NPS photo.

Facilities, Management, and Operations

Facilities

Facilities are predominantly historic buildings and structures and are also described in the “Cultural Environment” section of this chapter. Facility owners at Kalaupapa NHP include the State of Hawai‘i, the NPS, patients, and religious institutions. Most of the buildings at the park are classified as historic structures. Approximately 95 buildings and structures are privately owned; these include garages, outbuildings, beach houses, or churches and related structures held by religious entities. The remaining buildings belong to the State of Hawai‘i through its departments: the DOT owns the airport’s terminal and maintenance facility, and the other approximately 150 buildings, including most residences and community facilities, belong to the DOH.

Management responsibility for these facilities is distributed differently than ownership, however. As the patient population at Kalaupapa has diminished, the DOH has incrementally transitioned building management responsibilities to the NPS.

In the future DOH will take over ownership of patient-owned buildings at Kalaupapa. The beach houses, Fuesaina’s Bar and accompanying storehouse, as well as most garages, sheds, and outbuildings have traditionally been passed



three storage tanks for distribution to the settlement. The system serves 100 to150 people per day through 138 service connections.

A 2004 audit reported unusually high water use at Kalaupapa (Department of Energy 2004), which is thought to be the result of a serious water leak. As of 2009, water use remained quite high at 58,652 gallons per day (21.4 million gallons annually). The main source of the leak may be inside the two water storage tanks. A major overhaul of both water storage tanks has been funded.

In 2004, Kalaupapa’s water delivery system was calculated to cost the park 88 cents per 1000 gallons. Cost is driven by the price for diesel, which in 2004 was \$1.83 per gallon. From 2004 to 2011, diesel costs tripled. NPS has determined that converting from diesel to solar power—which would result in considerable cost savings—is feasible only if water use can be reduced to below 30,000 gallons per day. At that level the water system would have a carrying capacity of up to 300 people per day (Department of Energy 2004).

Sewage

The park installed septic systems upgrades in 2007–08 at sites throughout the park that receive high use. The majority of single family residences and office buildings are on a cesspool system. NPS is solely responsible for the maintenance of these septic systems and cesspools.

Table 4.7 shows the upgraded sites and their septic system capacities. The septic and cesspool capacity at Kalaupapa can handle at least 200 visitors plus 100 residents according to the Kalaupapa Chief of Maintenance.

Electricity

Maui Electric Company provides electricity. The entire service area, the Kalaupapa peninsula, is on one meter and serves approximately 237 buildings. Maui Electric has been negligent in maintaining the electrical distribution system and transmission lines within the settlement, while Maui Electric has done a good job in maintaining the delivery cables that descend the cliffs from topside. The monthly electricity consumption at Kalaupapa is 85,108 kilowatt-hours. This is the total power consumption of the peninsula, including the electricity needs of the patients and other occupants, generally healthcare workers and park employees. NPS facilities consume approximately 6,185 kilowatt-hours per month, approximately 7% of the total electrical consumption at Kalaupapa.

down or sold from patient to patient. According to the State of Hawai‘i attorney general, all patient-owned buildings that are not passed down or sold to another patient will become DOH property.

A complete list of structures at Kalaupapa NHP is listed in Appendix E.

Administrative Facilities

The park headquarters and the offices and support facilities for all park divisions are in Kalaupapa Settlement. The NPS facilities in the settlement also include staff housing. Due to the remote location and difficult access to Kalaupapa, nearly all employees live on-site. In the settlement, the park uses and maintains many of the infrastructure and operational facilities, though DOH retains ownership. NPS owns the lighthouse and the seven outbuildings and two residences also located at the 23-acre light station.

Utilities

NPS maintains the systems for water, recycling, and composting at Kalaupapa and is partially responsible for electricity, telecommunications, sewage, and solid waste disposal. Maui Electric is responsible for the primary electrical power distribution system. As the patient population declines and DOH ends its service as settlement administrator, NPS will continue to take on more responsibility for critical systems. The NPS’s current role in utilities at Kalaupapa is discussed briefly below.

Water

NPS maintains the community’s water supply and distribution system. Facilities include the 50-horsepower submersible pump and pump house, a hypochlorinator injection pump that adds 12.5% liquid chlorine to the water, three storage tanks, and a distribution system with 138 service connections. In 2009, Kalaupapa NHP won the honor of best-tasting water in the state in a contest sponsored by the DOH Safe Drinking Water Branch and the American Water Works Association.

The system draws 255 gallons of water per minute from a 500-foot-deep well in Waihānau Valley, using a submersible pump powered by a diesel generator. After an injection pump also powered by diesel treats the water, it is routed to

Table 4.7 Septic System Capacities

Building Number	Building Served	Designed Daily Flow Rate (gpd)	Designed Number of Users
292*	Damien Hall and Library (Catholic Church)	100	20 people/day (short gathering, less than 2-hour duration)
286	Protestant Church	100	20 people/day (one-time users)
BV1, BV2, BV3, BV5, BV6	Bay View Buildings	4,075	40 occupants
313	Curatorial Building	500	25 occupants
304	Paschoal Hall	100	20 people/day (one-time users)
M28	McVeigh Dorm	1,800	18 occupants
M23	McVeigh Rec. Hall	100	20 people/day (one-time users)
633	Trailhead Restroom	384	48 people/day (one-time users)
719	Kalawao Picnic Area	576	48 people/day (one-time users)
640a	Pier Public Restroom	Closed	0
270	Administration Building	300	20 workers
BV274, BV275, BV277, BV278	Visitors' Quarters and Wilcox Hall	1,800	28 occupants
62	Fuesaina's Bar	100	20 people/day (one-time users)
BV10	Quonset Dorm	1,500	15 occupants
M12	McVeigh Home	200	
SR5, SR6	Central Kitchen	500	5 workers
SR1	Residence for Single Women	1,000	10 occupants

Source: Hoa Lam, Civil Engineer, NPS Pacific West Region, Seattle Office.

The peninsula has a good wind resource, with annual average wind speeds of approximately 15.7 miles per hour. The peninsula also has a good solar resource, with an annual average solar resource of 5.36 kilowatt-hours per square meter per day. The serving utility, Maui Electric Company, currently allows net metering up to 100 kilowatt-hours.

Solid Waste

Until 2010, the DOH has collected Kalaupapa Settlement’s solid waste (including that from NPS) and disposed of it at an on-site landfill. In anticipation of DOH transitioning out of its role at the settlement, NPS took over the job of solid waste collection and disposal in 2010 after DOH closed the landfill. To prepare for this transition, in 2009 NPS began a comprehensive composting and recycling program. The park stores recycled materials, along with hazardous materials and large construction debris for shipment out on the annual barge. Two large composting bins equipped with augers mechanically stir food waste and other compostable materials. Compost is used at the NPS native plant nursery and in the community garden.

In 2010 NPS contracted for air service to remove solid waste and construction waste products that cannot be composted, recycled, or removed by barge. The air service contract is permanently funded and costs the park approximately \$54,000 per year for removal of 55,200 pounds of solid waste. The park hopes to reduce the amount of non-recyclable trash in the future but can handle at least double the current amount of total trash produced at Kalaupapa. DOH is solely responsible for the long-term closure and monitoring of the Kalaupapa landfill(s).

Telecommunications

The general telecommunications system for the community is the responsibility of Hawaiian Telecom and Time Warner Oceanic. NPS installed its own fiber cabling system to connect five administrative buildings. The park maintains that system and assists Hawaiian Telecom with maintenance of their system.

Staffing

The park’s superintendent and division heads work together as a management team. The team is made up of the superintendent, management assistant, and administrative officer; the chiefs of natural and cultural resources; the chief ranger; and the maintenance mechanic supervisor. The Chief of Maintenance position for KALA is a shared position with Haleakala National Park.

Operational divisions at Kalaupapa NHP include administration, law enforcement, cultural resources, natural resources, and maintenance. The park lacks an interpretation and education division. Cultural resources employees handle some of the tasks that would normally be the role of that division, and the museum’s curator manages the park’s website. The park’s current operating divisions and their roles and facilities are described below. The NPS also maintains approximately 12 temporary positions funded by projects.

Table 4.8 Kalaupapa NHP Employees

Alternative A Staffing by Division	Permanent	Project Funded
Management and Administration	3	
Cultural Resources	5	2
Natural Resources	6	1
Interpretation and Education	1	
Facilities and Maintenance	19	9
Visitor Protection	6	
Total Staff	40	12

Diversity and Hiring

The park’s enabling legislation allows for native Hawaiian hiring preference. In 2011, 55% of all the employees at Kalaupapa NHP are at least 50% native Hawaiian.

To facilitate the native Hawaiian hiring preference when a job vacancy occurs at Kalaupapa NHP, job announcements are sent to the Molokai unemployment office, information about pending job announcements are sent to the Maui and Molokai newspapers, job announcements are made available to NPS Hawaiian volunteers, as well as student groups that visit Kalaupapa, and the Kalaupapa Advisory Commission recommends applicants for available jobs.

Volunteer Program

Despite its remote location, Kalaupapa NHP averages 120 volunteers annually. In 2010, there were 129 volunteers and two interns. A notable part of the labor accomplished at the park is performed by local Molokai youth organizations. Other volunteers include Hawai’i-wide community service organizations, religious groups with pre-existing connections to Kalaupapa, and visiting volunteers who assist park staff. Volunteers help remove invasive species from cultural sites, restore native plants via outplanting, paint and preserve historic structures, monitor endangered species, and clean up beach debris. Volunteers also assist protection rangers in wildland fire suppression efforts, such as defensible space clearing around historic structures, and building and vehicle maintenance. Administration makes use of volunteers for data entry projects. The most popular volunteer activity is always the beach cleanup. Table 4.9 provides a list of volunteer hours by category for fiscal year 2012.

Table 4.9 Volunteer Hours Recorded, 2012

Division	Volunteer Hours
Administration	3,121
Cultural Resources Management	2,862
Maintenance	1,349
Natural Resource Management	4,472
TOTAL	11,804

Partnerships

Public Law 95-565 allows for NPS management of nonfederal lands and facilities through cooperative agreements and leases.

Long-term Agreements

NPS has several long-term agreements and one lease; they are described in detail in “Chapter 2: Long-term Agreements.”

Short-term Agreements

NPS maintains short-term agreements at Kalaupapa NHP with the following partners:

Pacific Historic Parks

Pacific Historic Parks (formerly Arizona Memorial Association) has partnered with NPS in the Pacific area since 1979. At Kalaupapa it operates a bookstore/ gift shop and regularly provides financial aid to park operations that help tell the story of Kalaupapa to visitors. It also helps fund curatorial work, archival surveys, ethnographic research, and natural resource protection efforts. The group partners with the park via a cooperative agreement that is renewed every five years.

Ka ‘Ohana O Kalaupapa

The ‘Ohana is a nonprofit group, organized in 2005, that supports the patient community at Kalaupapa and their families and friends. The ‘Ohana is authorized by the Secretary of the Interior under Public Law 111-11 (2009) to install a memorial to honor and perpetuate the memory of every individual who was forcibly relocated to Kalaupapa peninsula from 1866 to 1969. The Public Law states that the ‘Ohana is solely responsible for raising funds for the memorial. The NPS completed an Environmental Assessment in December 2010 and signed a Finding of No Significant Impact in August 2011. The approved location for the memorial is at the site of the Old Baldwin Home for Boys in Kalawao. The NPS is awaiting the start of an ‘Ohana-organized design competition and final design proposal for the memorial. Funding for planning, design, construction, and maintenance will be through non-NPS fund sources.

Kalaupapa Guided Mule Tour

This commercial mule ride operation works in conjunction with the patient-owned Damien Tours to bring visitors from topside Molokai into the Kalaupapa Settlement. Kalaupapa Guided Mule Tour has a commercial use authorization with the park to provide and guide the mule rides.

Other Partnerships

The Hawai‘i DOH and the County of Maui work together to provide fire and law enforcement support at Kalaupapa. Their agreement is formalized through a mutual aid compact that remains in effect until July 1, 2015. Although NPS is not a direct partner to the compact, the park benefits greatly from the services it provides. The NPS also has a memorandum of understanding with R. W. Meyer, Ltd. for the portion of Meyer land on the upper section of the pali trail.

Socioeconomic Environment

The economic and social environment of Kalaupapa NHP is unique. The park encompasses a culturally distinct community on a physically isolated peninsula on a sparsely populated island in one of the most remote island chains on earth. This profound physical and cultural isolation means that Kalaupapa NHP’s primary socioeconomic context is the island of Molokai, and more specifically Kalawao County and the Kalaupapa Settlement.

Molokai lies southeast of O‘ahu, Hawai‘i’s population center and economic hub, and northwest of Maui, a tourist mecca. Topside Molokai is part of Maui County. The land boundary of Kalawao County is contiguous with the land boundary of Kalaupapa NHP.

Maui and Kalawao Counties are two of only five counties in the state. County governments play an unusual role in Hawai‘i because no municipal governments exist except for the City and County of Honolulu.

In the specific case of Kalawao County, county governance falls to the state DOH, and the services usually handled by Hawai‘i counties are shared between the DOH and the NPS. The NPS manages the land, which is largely owned by the DHHL, DLNR, and DOT.

Though remarkably isolated, Kalaupapa’s socioeconomic environment exists in the broader context of topside Molokai, Maui County, and the state as a whole. This section discusses the peninsula’s social and economic context and concludes with a look at the unique culture and economy of Kalawao County / Kalaupapa NHP.

State of Hawai‘i

Population and Demographics

Hawai‘i’s population steadily grew by about 12.3% between 2000 and 2010. The 2011 population estimate for Hawai‘i is 1,374,810, an increase of approximately 14,509 people from the 2010 data. Children under 5 represent 6.4% of the total, and seniors over 65 account for 14.3%. The state is ethnically diverse: Asians comprise the largest portion of the population, with whites and persons declaring two or more races close behind. Figure 4.7 illustrates Hawai‘i demographics estimated in 2010. That year, Hawai‘i totaled 211.8 persons per square mile, compared to the U.S. average of 87.4 persons (U.S. Census Bureau [USCB] 2010a).

Employment and Housing

Estimates from 2006 to 2010 showed that approximately 66.8% of the state’s people were in the labor force. Of these, fewer than 4% were in the military. In the civilian labor force, 3.6% were unemployed. There were 519,508 housing units in the state in 2010, 39.2% of those in multi-unit structures. The rate for homeownership was 59.3%. Housing units had an overall occupancy rate over 1 year of 84.6% (USCB 2010b).

Economic Overview

Hawai‘i enjoyed a 1.2% economic growth rate between 2009 and 2010, as measured by real and nominal gross domestic product (GDP) and by real GDP per capita. The per capita money income in 2010 was \$28,882, with the median household income at \$66,420. 9.6% of the total population of Hawai‘i was below the poverty line in the same time period (U.S. Bureau of Economic Analysis 2008; USCB 2010b).

In 2010, 73.5% of jobs statewide were in trade and services, an arena largely driven by tourist-related economic activity. Consistent with Hawai‘i’s role as a tourist destination, accommodation and food services accounted for 15.7% of all jobs and topped the list of private employment opportunities (U.S. Bureau of Economic Analysis, File CA25N n. d.; USCB 2010b).

State tourism officials track the number of people who arrive in Hawai‘i. Though the resident population totals about 1.4 million, approximately 8.3 million visitors came to the state in 2010: 75% from the U.S. mainland and 25% from U.S. territories or other countries (State of Hawai‘i Department of Business, Economic Development, and Tourism [DBEDT] 2010b).

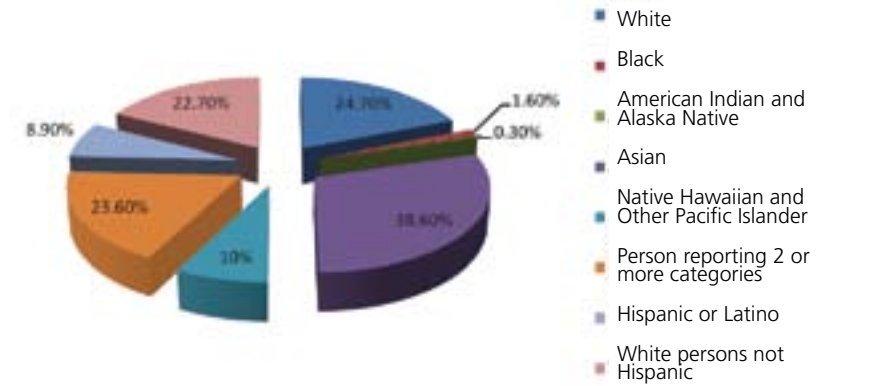
Maui County

Maui County includes Maui, Lāna‘i, Kaho‘olawe, and topside Molokai. As a whole, the county of Maui grew continuously over the past decade (USCB 2010). In 2010, the population estimate for the county was 154,834 (about 8.8% of the state’s residents), with a population density of 133.3 persons per square mile and approximately 70.2% of the population in the labor force. The county had approximately 65,000 housing units with a 75% occupancy rate. Over one-quarter (26%) of civilians worked in the service sector, a reflection of tourism’s role in the economy (Maui County Planning Department [MCPD] 2006; 2010 U.S. Census Bureau, Selected Economic Characteristics). The island of Maui in particular is a world-renowned tourist destination.

Molokai Island

Molokai lies just southeast of O‘ahu and is home to 7,345 people, less than 1% of Hawai‘i’s population. The island is divided into three areas: east, west, and Kalawao County. Molokai possesses unique natural and cultural resources and a resilient, independent workforce that is fiercely protective of the island’s environment and cultural heritage.

Figure 4.7 State of Hawai‘i Demographics, 2010



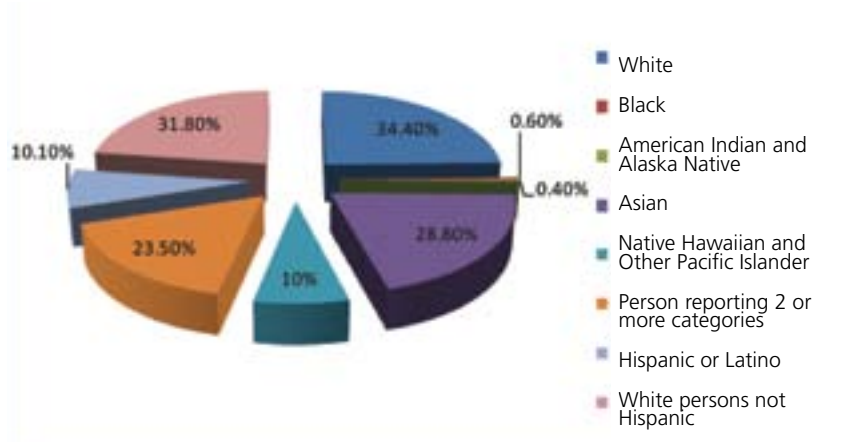
Source: U.S. Census Bureau, “2010 Census: 2010 and 2011 Population Estimates.”

Table 4.10 State of Hawai‘i Number of Jobs by Industry, 2006–10

	Total in Labor Force	Ag [1]	Industrial [2]	Trade and Services [3]	Public Administration
People	714,067	10,246	107,778	466,480	51,950
(%)	66.8%	1.6%	16.9%	73.5%	8.2%

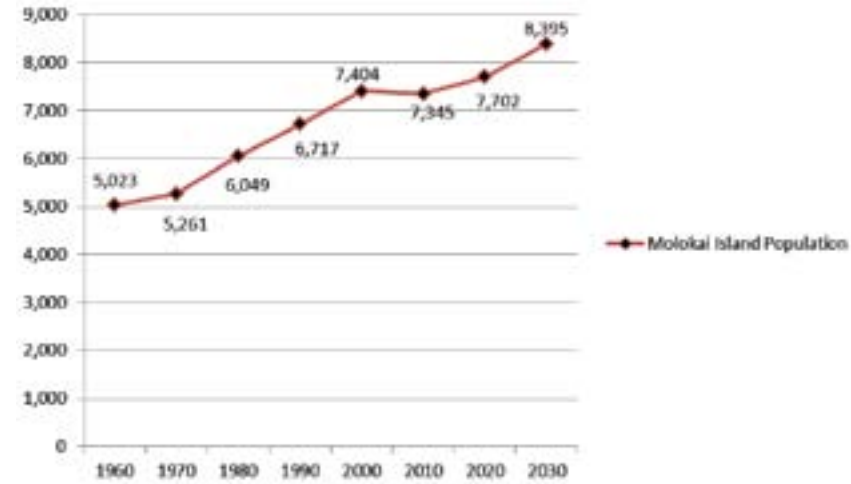
Notes:
[1] includes agriculture, forestry, fishing and hunting, and mining
[2] includes construction, manufacturing, transportation and warehousing, and utilities
[3] includes wholesale and retail trade; information services; finance and insurance; real estate, rental, and leasing; professional, scientific, management, administrative, and waste management services; educational services, health care, and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services, except public administration.
Source: U.S. Bureau of Economic Analysis, 2006–10, CA25N.

Figure 4.8: Maui County Demographics, 2010



Source: U.S. Census Bureau, 2010 Maui County Factsheet.

Figure 4.9 Molokai Resident Population, 1960–2030



Sources: Maui County Planning Department, “Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030,” June 2006, Exhibit I-1, p. 39; and DBEDT 2010b Table 1.05: Resident Population of Islands: 1960 to 2010.

Table 4.11 Maui and Kalawao Counties Combined Number of Jobs by Industry, 2006–10

	Total in Labor Force	Ag [1]	Industrial [2]	Trade and Services [3]	Public Administration
People	83,934	2,002	59,151	12,965	3,872
(%)	70%	2.6%	16.6%	76%	5%

Notes:

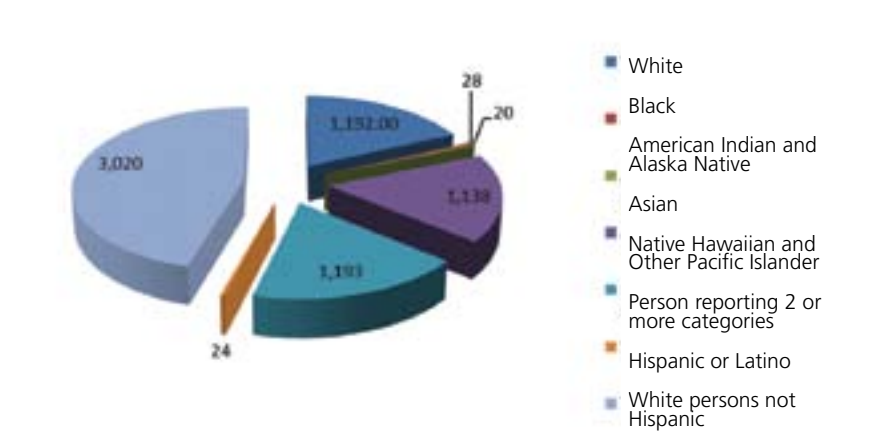
[1] includes agriculture, forestry, fishing and hunting, and mining

[2] includes construction, manufacturing, transportation and warehousing, and utilities

[3] includes wholesale and retail trade; information services; finance and insurance; real estate, rental, and leasing; professional, scientific, management, and administrative and waste management services; educational services, health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services, except public administration.

Source: U.S. Bureau of Economic Analysis, 2006–10, CA25N.

Figure 4.10 Molokai Demographics, 2010



Source: DBEDT 2013, “2010 Census Demographic Profile.”

The percentage of Hawaiians is greater than anywhere in the state. This is reflected in a culture that views the island as a whole, despite its different jurisdictions; that relies heavily on traditional subsistence activities on land and sea; and that resists economic growth based in tourism and development.

Commercial Agricultural Context

Since the 1800s, Molokai’s economy has been largely driven by ranching or commercial agriculture (including sugar, coffee, melons, vegetables, and pineapple). From the 1920s to the 1970s, large-scale pineapple plantations were the island’s major economic driver (MCPD 2006).

Population and Demographics

Between 2000 and 2010, the population of Molokai decreased 0.1% from 7,404 to 7,345 people. According to Maui County officials, Molokai’s population density is 82.2 residents per square mile. Population concentrations have increased over the last decade in Kaunakakai, Kualapu‘u, and Maunaloa (USCB 2010c; DBEDT 2010b). Projections indicate that the island’s population may have an upward trajectory over the coming decades (Figure 4.9). A majority of Molokai’s people (41.7%) consider themselves of two or more races, with 26.5% representing Hawaiians and other Pacific Islanders, 17.4% representing Asians, and a mix of other races accounting for the other 14.4% (Figure 4.11).

Housing

Molokai has an average household size of 2.84 residents and a total 2,582 households, leading to a 1.1% average annual housing unit growth rate between 2000 and 2010 (DBEDT 2010 Resident Population of Islands and Census Designated Places, Table 1.13, State of Hawai‘i). The housing vacancy rate is the highest in the Hawaiian Islands, measured at 30.5% in 2010 and representing a 6.5% increase since 2000. The number of households within all of Molokai is 2,582: in 2010, 1,671 households and 4,503 residents resided in East Molokai, 842 households and 2,752 residents were in West Molokai, and 69 households and 90 residents were counted in Kalawao County (DBEDT 2010 Island Population and Housing Units Table 1.17, State of Hawai‘i).

Economic Overview

For this analysis Molokai’s economy is examined in two parts. The first is Molokai’s self-employed and subsistence economy. The second is an economy based on local transactions and the distribution and trade of goods and services.

Wage and Salary Economy

The civilian wage and salary portion of the economy is largely driven by transactions between residents for goods and services, though it also caters to tourists visiting the island. The majority of civilian wage and salary jobs as of December 2011 were in the service industry (34%) and government positions (27%). Molokai’s unemployment rate (not seasonally adjusted) over the past 10 years has fluctuated from a high of 10.7% in 2004 to a low of 5.2% in 2006. As of 2011, the unemployment rate was estimated to have risen to 13.9% (State of Hawai‘i, Department of Labor and Industrial Relations n.d.). It should be noted that persons who have dropped out of the labor force are not counted in official unemployment figures.

The movement of goods to and from Molokai continues to be limited to the Kamaluhia barge that arrives twice weekly at Kaunakakai Harbor, at the southern end of the island. Most goods are transported via barge to the harbor, and limited perishable goods arrive by plane at the Hoolehua Airport. Goods are then transported along the main state highways, including 470, 460, and 450. The highways allow for the transport of goods north to Kualapu‘u and Kala‘e and east to Ualapu‘e, Puko‘o, and other southeastern coastal communities.

Subsistence Economy

Molokai’s subsistence economy is driven by farming, hunting, gathering, and fishing, including use of native Hawaiian fishing ponds along the southern coast. The subsistence economy also includes small, self-employed entrepreneurs not involved in traditional economic activities. There are many job types within the subsistence and self-employed categories. Table 4.12 lumps these job types into the “Self-employed jobs” row. This portion of the job market encompassed approximately 29% of Molokai’s economy in 2000 and is projected to rise over the coming decades to as much as 35% and higher. This increase is consistent with the vision and goals outlined by members of the community in the plan, *Molokai: Future of a Hawaiian Island*, and it is in line with the governor’s goal of enhancing Hawai‘i’s food self-sufficiency (MCPD 2006; State of Hawai‘i, Office of the Governor 2009). This is in stark contrast to the state as a whole, which imports approximately 85–90% of food consumed (Leung and Loke 2008).

Government Assistance

Despite the tourist economy, a large subsistence/self-employed sector, and an independent workforce, the ability of Molokai’s residents to generate a livable income on the island remains challenging, as shown by Table 4.13.

As a result, many Molokai residents rely on some form of government assistance from the Hawai‘i Department of Human Services. Twenty-five percent of Molokai’s population (a monthly average of 1,780 persons) receive assistance through programs such as Temporary Assistance to Needy Families; Social Security income; and the Aged, Blind, and Disabled program; among others (July–October 2010) (State of Hawai‘i, Department of Human Services n. d.).

Local Impact of National Economic Conditions

Finally, it should be noted that the combination of the national recession that began in 2008 and the closure of Molokai Ranch Limited make the projected figures included in this analysis less accurate today than when originally reported. The eventual impact of these events on the overall economy, particularly as it relates to unemployment, government assistance needs, and future visitation is yet to be seen. Figure 4.11 illustrates the fluctuation of state unemployment rates between 2000 and 2010, reflecting the national economic conditions. Maui County unemployment rates parallel the curve of Hawai‘i’s unemployment shown in Figure 4.11: no information was available specifically for the island of Molokai.

Tourism

Although the service industry is most directly affected by tourist dollars spent on Molokai, these dollars have indirect benefits to the island’s economy as a whole through the additional transactions. Table 4.14 compares total arrivals by air or cruise ship for Molokai and the State of Hawai‘i. The number of visitors on the island has declined over the past two years, although tourist spending has increased. Table 4.15 provides 2010 data on visitor spending and duration of stay on Molokai (DBEDT 2010a). This large influx of dollars from both domestic and international tourists is a major economic activity on Molokai.

Land Use and Landownership

Land on the island is largely private and owned by nonresidents (about 70%), as shown in Figure 4.12. However, large tracts of land on the island are owned by the State of Hawai‘i. The largest private landholder is Molokai Ranch Limited, which does business under the names Molokai Properties Limited and Molokai Ranch. Molokai Ranch Limited owns approximately 58,400 acres, primarily on the west side of the island. Table 4.16 lists Molokai’s major landowners in 2011, and Table 4.17 is a breakdown of land use on the island between 2008 and 2010. Table 4.18 estimates the acreage for each land use on Molokai according to 2006 data.

In 2008 Molokai Properties Limited, also known as Molokai Ranch, ceased operations on the island and laid off its 120 employees. The company owned and operated the Molokai Lodge hotel, the Kaupoa Beach Village, the Kaluakoi Golf Course, the Maunaloa gas station, and the Maunaloa Tri-Plex theater and cattle operations, all of which have been shut down (McAvoy 2008). The company’s economic impact on the island is estimated to have been about \$9 million annually. The \$9 million was divided into \$3.7 million in payroll benefits, \$2 million in spending on supplies, and \$3 million in visitor spending (Magin 2008). This loss of economic activity and jobs has had a negative impact on the local economy, despite an infusion of federal dollars in the form of a

Table 4.12 Molokai Jobs by Industry, 1990–2030

	Historical		Projected		
Forecast Variables	1990	2000	2010	2020	2030
Civilian Jobs	1,956	2,681	2,911	3,293	3,731
Wage and salary jobs	1,638	2,080	2,188	2,434	2,712
Agriculture	62	100	109	129	150
Manufacturing	0	15	31	37	43
Construction	39	50	46	48	52
Trans., com., util.	121	100	109	129	150
Trade	237	300	326	388	449
Banking, finance	60	250	229	241	260
Services	605	700	668	724	796
Hotels	271	150	163	194	225
Other Services	334	550	505	530	572
Government	514	565	669	737	813
State/local	479	550	652	716	790
Federal	35	15	18	20	23
Self-employed jobs	318	601	723	859	1,019

Notes:

The closure of Molokai Ranch make 2010 projections from the Maui County forecast less reliable, particularly for the service industry. 2006 data is most recent, so 2010 is projected until new information is available. Source: Maui County Planning Department, “Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030,” June 2006, Exhibit I-13, p. 62.

National Emergency Grant to compensate some of the laid-off workers (Pacific Business News 2008). In addition, the loss of 62 visitor rooms has negatively impacted the local tourism economy in the short term, given the now smaller supply of visitor rooms to accommodate tourists. At this time, there is only one other operating hotel (Hotel Molokai), but other overnight accommodations such as condominiums, time shares, and bed and breakfasts remain (Magin 2008; Molokai Chamber of Commerce 2011).

Kalawao County and Kalaupapa NHP

The socioeconomic environment of Kalawao County and Kalaupapa NHP is unique in that economic activity is almost entirely government-planned. The

Table 4.13 Molokai Households by Income Categories, Historical and Projected

	Historical		Projected		
Year	1990	2000	2010	2020	2030
Total Households	2,088	2,420	2,475	2,722	3,006
Household Size	3.22	3.05	2.94	2.86	2.79
Number of Households Who Earn No More Than:					
50% of HUD Median	38%	50%	39%	39%	39%
80% of HUD Median	58%	73%	67%	67%	67%
100% of HUD Median	68%	81%	73%	73%	73%
120% of HUD Median	75%	86%	80%	80%	80%
140% of HUD Median	80%	90%	88%	88%	88%

Notes:

Households = Population/Household size
Molokai Households by Income = Percent in Income Category x Molokai Households
“Adjusted” 2005 distribution taken from SMS 2003 survey and used as basis for projected distribution.
Household income is the total income, from wages, investment, benefits, and other sources, of all members of a household for the year preceding an enumeration. Household income is grouped with reference to the HUD median income for the county. The HUD median is used by government agencies to assess demand for programs such as Section 8 housing.
Source: Maui County Planning Department, “Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030,” June 2006, Exhibit I-8, p. 45.

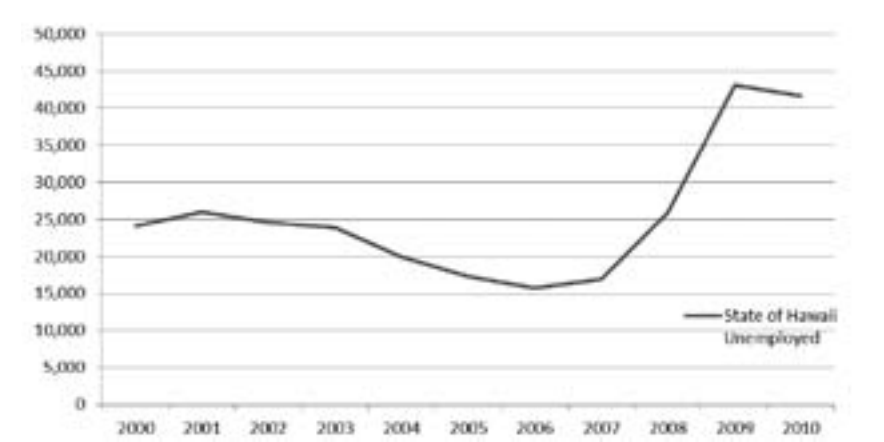
DOH and the NPS cooperate to ensure the effective provision of goods and services for residents and the preservation and conservation of this special place. The DOH expends roughly \$3.98 million on the continued care of residents and distribution of goods, services, and monies to residents and employees. The NPS expended approximately \$8.1 million for fiscal year 2012, primarily on resource preservation and protection activities. \$3.3 million of the total was for critical repairs to the Kalaupapa Dock. Visitors to Kalaupapa NHP spent approximately \$373,000 in 2011.

Population, Demographics, Income, and Housing

The population of Kalawao County in 2000 was 147, and by 2010 the population was estimated to have fallen to 90, a 38.8% decrease over a 10-year period (USCB 2010a). The drop in population is the result of residents passing away, as well as a reduction in the DOH staff needed to provide adequate services to the remaining population.

The median household income for the county between 2006 and 2010 was \$41,308, and the per capita income was \$43,308 (both in 2010 dollars), with approximately 4.1% of individuals living below the poverty level. At the time of this report there were 32 housing units in Kalaupapa NHP, with a 0% home-ownership rate, as all homes are owned by the DOH (USCB 2010e). Table 4.19 lists numbers of NPS and DOH staff and patients living in Kalaupapa.

Figure 4.11 State of Hawai‘i Unemployment Status of the Civilian Labor Force, 2000–10



Source: DBEDT, “2010 State of Hawai‘i Data Book,” Table 12.06.

Role of Federal and State Government

Nearly all of the acreage within the park boundary remains in nonfederal ownership and is managed by the NPS through multiple agreements with state agencies. The NPS has limited fee-simple ownership of the land and water within the park boundary and is charged with operating, preserving, and protecting the park. The DOT continues to deliver health-related services for the residents who choose to remain at the settlement, and the DOT owns and operates the Kalaupapa Airport. The DLNR is responsible for the management of resources on state land, and the NPS cooperates in that management through a formal cooperative agreement. Currently, the DHHL leases 1,247 acres to the NPS for \$230,000 annually. This agreement is set to expire in 2041 (DHHL 2011).

NPS Budget and Personnel

The NPS staff works to fulfill the NPS mission and requirements related to cooperative agreements with state agencies. To meet park needs, the NPS budget has grown from about \$2.6 million in 2006 to about \$6.2 million in 2010. In 2012, the NPS expended \$8.1 million; \$3.3 million of the total was for critical repairs to the Kalaupapa Dock.

Role of Department of Health (DOH)

The Hawai'i Department of Health continues to play a major role at the settlement. Following the completion of a state audit first conducted in the summer of 2003, the department has worked to make its operations more accountable and responsive to residents' needs. The Kalaupapa Settlement is overseen by an administrator employed by the DOH who works directly with residents and the Patient Advisory Council (State of Hawai'i, Office of the Auditor 2003).

The DOH is a major purchaser of goods for the settlement and is responsible for provisioning medical, dental, ancillary services and devices, and basic living needs of residents living at Kalaupapa. In addition, DOH works to define and address residents' non-medical needs and to promote a positive living environment (such as updating residents' household appliances and enhancing resident living environments to better accommodate those with disabilities). The DOH operates the Kalaupapa Store and cafeteria and provides for physician visits twice weekly. To help residents stay in their homes as long as possible, the agency also operates a meals-on-wheels program for residents no longer able to cook for themselves, a home chore worker program, and a lawn service. The DOH additionally directs a Type II Adult Residential Care Home at Kalaupapa and the Hale Mōhalu Hospital in Honolulu and covers transportation costs for residents receiving specialty care or health services unavailable at the settlement.

Table 4.14 Molokai Total Visitor Arrivals, 2010

	By Air (Domestic)	By Air (International)	By Cruise Ship	Total
Molokai with other islands	541,599	8,653	2,833	553,085
Molokai only	6,366	373	—	6,739
State of Hawai'i	5,022,883	1,959,542	101,239	7,083,664

Note: Sample sizes for Molokai are relatively small.

Source: DBEDT, 2010 Monthly Visitor Statistics.

Table 4.15 Molokai Total Annual Visitation and Spending, 2010

	Spending (\$)	Arrival by Air	Days
Total Expenditures	27.9 Million	Total Days	245,259
Per Person Per Day Spending	113.70	Visitor Arrivals	50,253
Per Person Per Trip Spending	555.10	Visitor Average Length of Stay	4.88

Note: Sums may not add up due to rounding errors. Spending by visitors who came by air excludes supplemental business expenditures and spending by visitors who came by cruise ships.

Source: DBEDT, 2010 Monthly Visitor Statistics and Hawai'i Tourism Authority.

Table 4.16 State of Hawai'i and Molokai Major Landowners, 2011

Landowner	State of Hawai'i Acres	Molokai Island Acres
State Government (including DHHL)	1,534,792	48,961
State Government (excluding DHHL)	1,341,087	24,196
Home Lands (DHHL)	193,706	24,765
Federal Government	530,792	136
Kamehameha Schools	363,476	4,937
Molokai Ranch Limited	58,418	58,418
County Government	33,000	258
Pu'u O Hoku Ranch	13,098	13,098

Source: DBEDT 2011, Land Use and Ownership, Table 6.07.

Figure 4.12 Landownership on Molokai

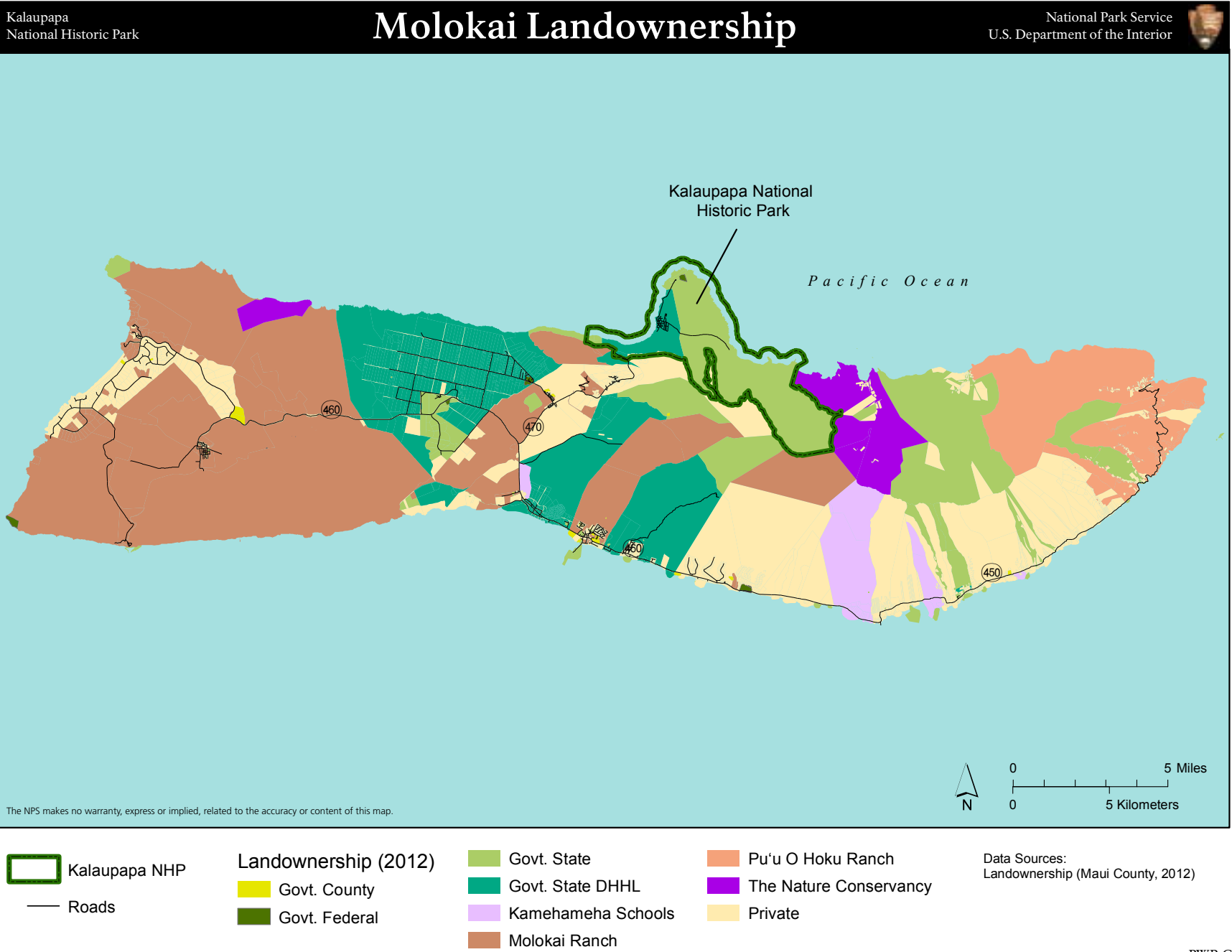


Table 4.17 DHHL Acreage, Lessees, and Applicants for Landownership and Use on Molokai, 2008–10

DHHL Leases and Applications	2008 (Acres)	2009 (Acres)	2010 (Acres), as of December 31
Total Acreage (Homestead and General Leases, Licenses, Other)	25,769	NA	NA
Homestead Leases	843	846	NA
Residential	392	394	NA
Agricultural	424	425	NA
Pastoral	27	27	NA
Applications	1,844	1,884	1,913
Residential	716	727	730
Agricultural	949	969	996
Pastoral	179	188	187

Notes:
Acreage rounded to the nearest whole acre.
Residence, agriculture, or pasture. Since applicants may apply for two types of leases, duplications occur. The Department estimates that 2008 and 2009 Statewide applications of 39,155 and 40,084 are held by some 24,296 and 20,122 applicants respectively. Data are subject to audit.
Source: DBEDT 2010b, Land Use and Ownership

Table 4.18 State of Hawaiʻi and Molokai Estimated Acreage of Land Use Districts, 2006

	Total Acres	Urban	Conservation	Agricultural	Rural
Molokai	165,800	2,539	49,768	111,627	1,866
State of Hawaiʻi	4,112,388	197,663	1,973,631	1,930,224	10,870

Notes:
These totals differ somewhat from the official figures based on measurements by the Geography Division of the U.S. Bureau of the Census, cited in Section 5. For definitions, see Hawaiʻi Revised Statutes, Section 205-2.
May be revised, pending updates of County records.
Source: DBEDT, “2010 State of Hawaiʻi Data Book 2010,” Table 6.04.

To ensure the continuation of high-level care, the DOH recently released funds for the design and construction of building upgrades to the Kalaupapa Care Home (DOH 2011; 2012 State Audit).

Residents receive a small cash allowance in food credit from DOH to use at the Kalaupapa Store or for the meals-on-wheels program. Resident patients also receive an additional cash allowance for clothing, food rations, and petty cash. Finally, the DOH pays for patients’ Medicare A and B premiums and Medicare Part D costs (drug plan). As of December 2011, Kalaupapa patient employees received DOH pension payments amounting to \$42,379 (DOH 2011; 2012 State Audit).

The DOH provides services to settlement residents wishing to remain on the peninsula. The DOH budget has consistently grown over the past five years with the exception of 2009, when it decreased slightly from the previous year. The budget grew approximately 34% between 2006 and 2010 and includes both the goods and services provided at Kalaupapa Settlement as well as the health services DOH provides at Hale Mōhalu hospital in Honolulu. These allocations are listed in Table 4.20 (Hawaiʻi DOH 2010).

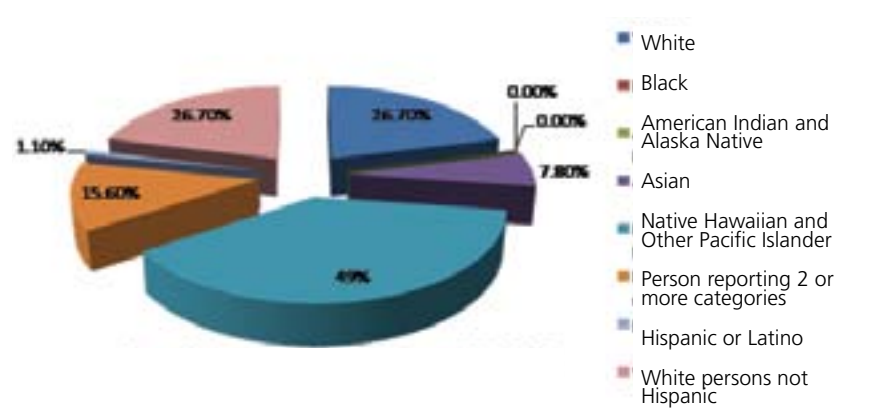
Settlement Supplies

The supply of goods to Kalaupapa is provided via barge once a year. The barge delivers supplies such as gasoline, vehicles, building materials, and nonperish-able goods. In order to ensure the long-term capacity to supply the settlement, the DOH Hansen’s Disease Branch requested Capital Improvement Project (CIP) funds in the amount of \$4 million in FY2008 and \$3.3 million in FY2009, while the last of the branch’s major capital improvements was completed in 2011 (DOH 2011). The NPS completed stabilization and repair of the Kalau-papa dock in 2012, which will ensure that vessels can continue to safely deliver supplies to Kalaupapa.

Visitor Spending

In 2010, the average visitor spent \$867, ranging from \$192 for local residents, to \$169 for visitors on day trips, to \$1,403 for visitors staying on the island. Total spending equates to \$5.9 million attributed to the park, which included all spending inside the park and spending where the park was the primary purpose of the visit. Those visits where the park was not the primary purpose, one night of spending was counted for overnight trips and half of the spending outside the park was counted for day trips, altogether representing 52% of the overall

Figure 4.13 Kalawao County Demographics, 2010



Source: U.S. Census Bureau, 2010 Kalawao County Factsheet.

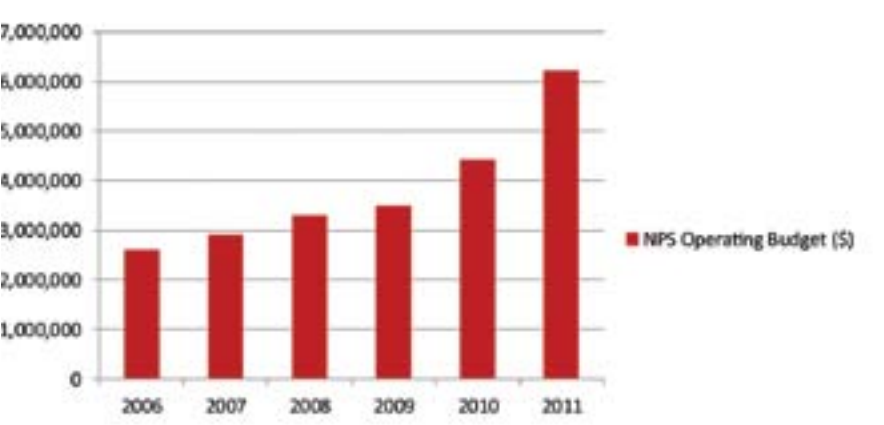
Table 4.19 Kalaupapa Settlement Population, 2006–10

Year	Hansen’s Disease Patients [1]	Hawaiʻi DOH Staff [2]	NPS Staff (Total Full-time Equivalent)
2006	35	46	32
2007	33	46	36
2008	28	45	35
2009	23	42	40
2010	19	42	48
2011	19	42	47
2012	17	42	54

Notes:
[1] Number of patients as of January 1 of each year.
[2] Budgeted position counts (includes nursing staff and vacant positions); seven positions have been cut in 2010, but have not been deleted from the budget pending legislative process.

Source: DOH, *Report to the Twenty-Sixth Legislature, State of Hawaiʻi*, 2011.

Figure 4.14 NPS Operating Budget, 2006–11



Source: NPS, Kalaupapa NHP.

Table 4.20 State of Hawaiʻi DOH Budget (Kalaupapa and Hale Mōhalu), 2006–10

	2006	2007	2008	2009	2010
Kalaupapa	\$3,040,863	\$3,466,907	\$4,025,960	\$4,024,425	\$3,976,658
Hale Mōhalu	\$1,183,456	\$1,287,036	\$1,324,556	\$1,324,556	\$1,680,018
Total	\$4,226,325	\$4,755,950	\$5,352,524	\$5,350,990	\$5,658,686
Total federal reimbursement to state general fund	\$1,979,075	\$1,979,075	\$1,979,075	\$1,943,480	
Allotment to Hansen’s disease community program (federal funds are not allotted to Kalaupapa or Hale Mōhalu)	\$695,669	\$695,669	\$695,669	\$695,669	\$1,095,018

Notes:
The State of Hawaiʻi government’s fiscal year is from July 1 to June 30. Federal reimbursement is deposited into the state’s general fund, with a portion being allotted to the Hansen’s disease community program. Kalaupapa and Hale Mōhalu do not have access to the federal reimbursement funds.
Source: Hawaiʻi DOH, Hansen’s Disease Branch, 2010.

visitor spending. Visitor groups spent approximately 91% of their total expenditure outside the park.

Table 4.21 lists total spending associated with park visits in 2010 and illustrates how spending by Kalaupapa NHP visitors is allocated. Information about visitor spending in this section is derived from the Impacts of Visitor Spending on the Local Economy: Kalaupapa NHP, 2010 (NPS 2010b). Refer to Table 4.22 for economic impacts of visitor spending attributed to park visits.

The \$5.9 million, including direct and secondary effects, spent by park visitors and attributable to the park generates \$8.1 million in sales, which supports 96 jobs in the local region. These jobs pay \$3 million in labor income, which is part of \$5 million in value added to the region.

Table 4.21 Total Visitor Spending Attributed to Kalaupapa NHP Visits, 2010

Expenditures	Local	Day Trip	Paid Overnight	Other OVN	All Visitors
Motel, hotel, cabin, B&B	0	0	\$2,316,000	0	\$2,316,000
Camping fees	0	0	\$1,000	0	\$1,000
Restaurants and bars	0	\$43,000	\$620,000	\$15,000	\$678,000
Groceries and takeout food	0	\$35,000	\$396,000	\$14,000	\$445,000
Gas and oil	0	\$22,000	\$162,000	\$6,000	\$190,000
Local transportation	0	\$102,000	\$746,000	\$35,000	\$883,000
Admission and fees	\$24,000	\$241,000	\$666,000	\$94,000	\$1,000,000
Souvenirs/other expenses	\$2,000	\$77,000	\$302,000	\$36,000	\$415,000
Total Attributed to Park	\$26,000	\$520,000	\$5,209,000	\$199,000	\$5,928,000
% of spending attributed to the park	23%	85%	50%	49%	52%
% of attributed spending	<1%	9%	88%	3%	100%

Note: Percentages do not total 100% due to rounding.

Source: NPS, *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historic Park, 2010*.

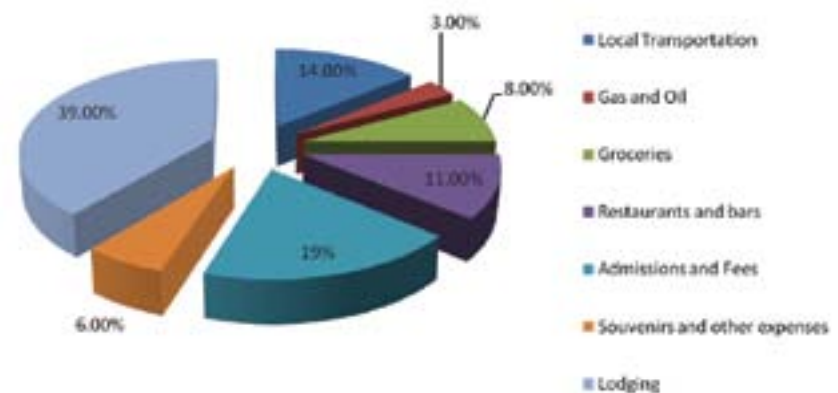
Table 4.22 Economic Impacts of Visitor Spending Attributed To Kalaupapa NHP, 2010

Sector/Expenditure Category	Sales	Jobs	Labor Income	Value Added
Direct Effects				
Motel, hotel, cabin, B&B	\$2,316,000	\$14,000	\$752,000	\$1,347,000
Camping fees	\$1,000	0	0	\$1,000
Restaurants and bars	\$678,000	\$9,000	\$302,000	\$410,000
Groceries and takeout food	\$1,000,000	\$15,000	\$505,000	\$772,000
Gas and oil	\$883,000	\$30,000	\$364,000	\$454,000
Local transportation	\$113,000	\$2,000	\$59,000	\$97,000
Admission and fees	\$42,000	\$1,000	\$21,000	\$35,000
Souvenirs/other expenses	\$207,000	\$3,000	\$112,000	\$183,000
Whole trade	\$73,000	\$1,000	\$27,000	\$47,000
Local production of goods	\$2,000	0	0	0
Total Direct Effects	\$5,315,000	\$73,000	\$2,142,000	\$3,346,000
Secondary Effects	\$2,770,000	\$23,000	\$895,000	\$1,648,000
Total Effects	\$8,086,000	\$96,000	\$3,037,000	\$4,994,000

Note: Impacts of \$5.9 million in visitor spending attributed to park reported in Table 4.21.

Source: NPS, *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historic Park, 2010*.

Figure 4.15 Kalaupapa NHP Visitor Spending by Category, 2010



Source: NPS, *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historical Park, 2010*.

Kalaupapa National Historical Park



Environmental Consequences 5



Visitors' quarters c. 1932. IDEA Photos.

Terms and Definitions

The following section defines the terms used for determining the environmental consequences of the actions in the alternatives. The environmental consequences to each impact topic are defined based on impact type, intensity, and duration and whether the impact would be direct or indirect. Cumulative effects are also identified.

Impact Type

The effects that an alternative would have on an impact topic could be either adverse or beneficial. **Adverse** impacts involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. **Beneficial** effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resources toward a desired condition. In some cases, the action could result in both adverse and beneficial effects for the same topic.

Intensity

Defining the intensity or magnitude of an impact is taken directly from Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision-making (NPS 2001). Impact intensity is the magnitude or degree to which a resource would be adversely affected. Each adverse impact was identified as negligible, minor, moderate, or major. Due

to the broad nature of actions called for in this GMP, most impact analysis is qualitative, rather than quantitative. For cultural resources and threatened and endangered species there are additional definitions for intensities that are described within those specific sections of this document. For the purposes of this analysis, intensity or severity of the impact is defined as:

- **Negligible** – Impact to the resource or socioeconomic environment is at the lower level of detection; no discernible effect.

The National Environmental Policy Act (NEPA) requires that environmental documents discuss the environmental impacts of a proposed federal action, feasible alternatives to that action, and any adverse environmental effects that cannot be avoided if a proposed action is implemented. In addition, the effects on historic properties are considered in accordance with the National Historic Preservation Act (NHPA). In this case, the proposed federal action would be the adoption of a general management plan for Kalaupapa National Historical Park.

The alternatives in this general management plan provide broad management direction. Thus, this environmental impact statement should be considered a programmatic document. If and when specific developments or actions are proposed subsequent to this general management plan for implementation, appropriate detailed environmental and cultural compliance documentation would be prepared in accord with NEPA and NHPA requirements. Those actions that implement guidance provided in the general management plan (GMP) may tier from this environmental impact statement (EIS).

This chapter begins with a discussion on terms and definitions used for determining environmental consequences, followed by a discussion on cumulative impacts. The second part of this chapter describes the methods and assumptions used for analyzing each impact topic. The impacts of the alternatives are then analyzed by impact topic in the order they appeared in the “Alternatives” Chapter 3. Each impact topic includes a description of the impact of the alternative, cumulative effects, and a conclusion. Where data are limited, professional judgment has been used to project environmental impacts.

At the end of the impacts of each alternative, there is a brief discussion of unavoidable adverse impacts, irreversible and irretrievable commitments of resources, and the relationship of short-term uses of the environment and the maintenance and enhancement of long-term productivity.

The impacts of each alternative are also briefly summarized in the “Summary of Impacts” chart at the end of the “Alternatives” Chapter 3.



Descending the pali trail to Kalaupapa. NPS photo.

- **Minor** – Impact is slight, but detectable; impacts present, but localized, and not expected to have an overall effect.
- **Moderate** – Impact is readily apparent; clearly detectable and could have appreciable effect on the resource or socioeconomic environment.
- **Major** – Impact is severely adverse; would have a substantial, highly noticeable influence on the resource or socioeconomic environment.

Duration

Duration refers to how long an impact would last. The planning horizon for the GMP is approximately 15 to 20 years. Unless otherwise stated, the following terms are used to describe the duration of the impacts:

Short-term: The impact would be temporary in nature, lasting one year or less, such as the impacts associated with construction.

Long-term: The impact would last more than one year and could be permanent in nature, such as the loss of soil due to construction of a new facility. Although an impact may only occur for a short duration at one time, if it occurs regularly over a longer period of time the impact may be considered to be a long-term impact. For example, the noise from a vehicle driving on a road would be heard for a short time and intermittently, but because vehicles would be driving the same road throughout the 20-year life of the plan, the impact on natural soundscape would be considered long-term.

Direct versus Indirect Impacts

Direct effects would be caused by an action and would occur at the same time and place as the action. **Indirect** effects would be caused by the action and would be reasonably foreseeable but would occur later in time, at another place, or to another resource. Unless specified, all impacts in the analysis are direct.

Cumulative Impacts

The National Environmental Policy Act requires an environmental impact statement to identify and analyze cumulative impacts. Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.



Governor John A. Burns and companions are greeted at the airport, c. 1965. Kalaupapa Historical Society Photo Collection.

Cumulative impacts are considered for all impact topics and alternatives. The National Park Service assumes the types of use that are occurring now will continue, but there may be new or different future uses. These actions are evaluated in conjunction with the impacts of each alternative to determine if they have any cumulative effects on a particular resource. For most of the impact topics, the geographic area defined for the analysis was Kalaupapa National Historical Park. In some cases, the area of consideration was Molokai Island.

To determine potential cumulative impacts, projects in the area surrounding the park were identified. Projects included in this analysis were identified by examining other existing plans

and by discussions with NPS staff, other public land managers, and representatives of city and county governments and with state and federal land managers. These projects were considered regardless of what agency, organization, or person undertakes them. Projects included in the cumulative impact analysis do not affect all resources equally.

The following land uses, operations, plans, and actions make up the cumulative impact scenario:

- Departure of the Department of Health and the patient community departure from Kalaupapa

Methods and Assumptions for Analyzing Impacts

The planning team based the impact analysis and the conclusions in this chapter on the review of existing literature and studies, information provided by experts in the NPS and other agencies, and park staff insights and professional judgment. The team’s method of analyzing impacts is further explained below. Impacts have been assessed assuming that mitigation measures would be implemented. If mitigation measures were not applied, the potential for resource impacts and the magnitude of those impacts would increase.

The impact analyses for the no-action alternative describe resource conditions as existing conditions, based on the continuation of current management. The impact analysis for the action alternatives (alternatives B, C, and D) compares the action alternative to the no-action alternative. In other words, the impacts of the action alternatives describe the difference between no-action and implementing the action alternatives. To understand a complete “picture” of the impacts of implementation any of the action alternatives, the reader must also take into consideration that impacts would occur under the no-action alternative.

- Improvements to Kalaupapa dock to ensure delivery of supplies essential to operate and maintain Kalaupapa via small barge
- Use of the airport for helicopter training exercises by the U.S. Marine Corps
- Construction of the Kalaupapa Memorial
- Management actions identified and completed for the fire management plan
- Changes to population, demographics, and development patterns on Molokai
- Removal of unexploded ordnance on Makanalua portion of the Kalaupapa peninsula by the Department of Defense
- Closure of the Kalaupapa landfill and institution of a large-scale recycling and garbage operation
- Investigation and construction of an alternate trail in the event of a permanent closure of the pali trail
- Removal of water from Waikolu Stream by Molokai Irrigation



Paschoal Hall. NPS photo.

Mitigation Measures Common to All Alternatives

Mitigation measures are the practicable and appropriate methods that would be used under any alternative to avoid and/or minimize harm to natural and cultural resources, visitors and the visitor experience, and socioeconomic resources when no other management alternatives exist (such as avoidance). These mitigation measures have been developed using laws and regulations, best management practices, conservation measures, and other known techniques from past and present work in and around Kalaupapa.

The general management plan provides a management framework for Kalaupapa NHP. Within this broad context, the alternatives include the following measures that may be used to minimize potential impacts from the implementation of the alternatives. These measures would be applied to all alternatives, subject to funding and staffing levels. Additional mitigation would be identified as part of implementation planning and for individual projects to further minimize resource impacts.

Management and Protection of Cultural Resources

The protection of Kalaupapa NHP’s cultural resources is essential for understanding the past, present, and future relationship and expressions of cultural heritage of people in Kalaupapa, on the island of Molokai, and within the State of Hawai’i. The NPS would pursue strategies to protect its cultural resources, including ethnographic, archeological, historic, cultural landscapes, historic structures, and museum collections while encouraging visitors and employees to recognize and understand their value. The strategies would allow the integrity of Kalaupapa’s resources to be preserved unimpaired. They would also ensure that Kalaupapa is recognized and valued as an outstanding example of resource stewardship, conservation education and research, and public use.

In accordance with NPS management policies, cultural resources would be protected and maintained according to the pertinent laws and policies governing cultural resources. These laws include the Organic Act, National Historic Preservation Act, the Archeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

Adverse impacts on historic properties listed in, determined eligible for listing in, or not yet assessed for eligibility to the National Register of Historic Places would be avoided, if possible. If adverse impacts cannot be avoided, an assessment of effect and a treatment plan, if necessary, would be developed through a consultation process with all interested parties. In accordance with NPS management policies, proposed adverse effects would be assessed to determine whether the proposed actions constitute impairment of significant fundamental cultural resources.

Values, Traditions, and Practices of Traditionally Associated People

The National Park Service would continue to consult with the Patient Advisory Council, Kalaupapa NHP Advisory Commission, native Hawaiian organizations, and interested parties to identify any cultural or natural resources of value to park associated people and develop appropriate strategies to mitigate impacts on these resources. Such strategies could include continuing to provide access to traditional or spiritual areas. The inadvertent discovery of human remains would follow all provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 and follow Hawai’i State Burial Laws.

Archeological Resources

Archeological surveys would precede ground disturbance required for new construction or removal of eligible historic properties. Known archeological resources would be avoided to the greatest extent possible.

Historic Structures

All project work relating to historic structures/buildings would be conducted in accordance with Director’s Order 28 and the guidelines and recommendations of the *Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*.

Historic structures would be stabilized until appropriate preservation maintenance could be undertaken. No National Register listed or eligible structure would be removed or allowed to decay naturally without prior review by park and region cultural resource specialists, including approval by the NPS regional director and consultation with the Hawai’i State Historic Preservation Officer.

Cultural Landscapes

All project work relating to cultural landscapes would be conducted in accordance with Director’s Order 28 and the *Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. Changes to individual features and resources comprising the cultural landscape would be assessed in the larger setting and environmental context to assure incremental change does not adversely affect the integrity of the landscape holistically.

Museum Collections

Mitigation measures related to museum collections consist of conservation of a collection through proper storage, handling, and exhibit of objects as specified in the *NPS Museum Handbook* and NPS Director’s Order No. 24, NPS Museum Collections Management.

Management and Protection of Natural Resources

Potential mitigation measures identified as effective in addressing specific impacts of management decisions on natural resources, and applicable to any alternative, are listed below:

Air Quality

- Implement a dust abatement program including the following potential actions: water or otherwise stabilize soils, cover haul trucks, employ speed limits on unpaved roads, minimize vegetation clearing, and revegetate with native species.
- Minimize NPS vehicle emissions by using the best available automotive technology whenever possible. Encourage the public and commercial tour companies to employ methods that reduce emissions. Employ sustainable designs for facilities and historic structures that reduce energy demands, thus reducing pollutant production.
- Strive for carbon neutral status at Kalaupapa by reducing greenhouse gas emissions while increasing appropriate carbon sequestration.



Interior of St. Philomena Church, before and after rehabilitation. NPS photos.

Soundscapes

- Implement standard noise abatement measures during NPS operations, including scheduling to minimize impacts in noise sensitive areas, using the best available noise control techniques wherever feasible, using alternatively (i.e. hydraulically or electrically) powered mechanized tools when feasible, and locating stationary noise sources as far from noise sensitive areas as possible.
- Locate and design facilities to minimize noise.
- Minimize idling of motors when power tools, equipment, and vehicles are not in use.
- Muffle or dampen sounds that are above ambient levels whenever possible to reduce noise impacts.

Lightscapes

- Install adaptive and on-demand lighting equipped with timers, dimmers, or motion detectors so that light would only be provided when it is needed to move safely between locations.
- Use fully sustainable, low-impact lighting, including but not limited to dif-fused light bulbs, and shielded and aimed outdoor fixtures and to prevent light spill.

Water Resources and Hydrologic Processes

Implement erosion control measures, minimize discharge to water bodies, check the water system for leaks to minimize waste, and regularly inspect construction equipment for leaks of petroleum and other chemicals to prevent water pollution; minimize the use of heavy equipment in a waterway; and wash heavy equipment prior to use in or near water bodies.

- Use bio-lubricants (such as biodiesel and hydraulic fluid) that are environ-mentally friendly.
- Develop sediment control and prevention plans for projects that could impact water quality
- Delineate wetlands and apply protection measures during projects; perform project activities near wetlands in a cautious manner to prevent damage caused by equipment, or increase erosion, siltation, etc.

- Consult with the State of Hawai‘i Department of Land and Natural Resources, Division of Aquatic Resources for work below the high water mark of state-owned waters.

Marine Resources—Coastal Reef, Habitats, and Wildlife

- Identify and protect marine areas within the park that are resistant and/or resilient to climate change impacts.
- Enhance sediment control and prevention plans for projects that impact coral reef habitats in nearshore areas.
- Establish and enforce mooring sites to minimize anchor damage to coral reefs from vessel traffic.
- See fishing section below to limit fish harvest and ensure that the ecosystem continues to function.

Soils and Geologic Resources and Processes

- Build new facilities on soils suitable for development
- Minimize soil erosion at construction sites by limiting the time that soil is left exposed and by applying other erosion control measures, such as erosion matting, silt fencing, sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
- Revegetate construction areas with appropriate native plants in a timely manner.
- Work with the Natural Resource Conservation Service to complete the soil survey of Kalaupapa NHP to provide information needed for sustainable soil management.
- Conserve native topsoil in construction projects.
- Consult with U.S. Army Corps of Engineers.

Vegetation

- Monitor areas used by visitors (such as trails) for signs of native vegetation disturbance and use public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers to control potential impacts on plants from erosion or social trails.
- Designate river and stream access/crossing points and use barriers and clo-sures to prevent trampling and loss of riparian vegetation.

- Develop revegetation plans for disturbed areas and require the use of genetically appropriate native species (revegetation plans should specify species to be used, seed/plant source, seed/plant mixes, site-specific restora-tion conditions, soil preparation, erosion control, ongoing maintenance and monitoring requirements, etc.; salvaged vegetation should be used to the extent possible).
- Survey for rare plants prior to any ground disturbing activities; distur-bance to rare or unique vegetation would be avoided to the greatest extent possible.
- Implement an invasive, nonnative plant management program. Stan-dard measures could include the following elements: use only weed-free materials for road and trail construction, repair, and maintenance; ensure equipment arrives onsite free of mud or seed-bearing material; certify that stabilization materials (rice straw) are weed-free; identify areas of noxious weeds pre-project; treat noxious weeds or noxious weed topsoil before construction (using methods such as topsoil segregation, storage, or herbi-cide treatment); soil or gravel should be covered with weed cloth to prevent weed seed introduction when the material is staged prior to using; when depositing ditch spoils along the roads, limit the movement of material to as close as possible to the excavation site; scrupulously and regularly clean areas that serve as introduction points for invasive, nonnative plants (staging areas, maintenance areas, and corrals); revegetate with genetically appropri-ate native species; inspect rock and gravel sources to ensure these areas are free of noxious weed species; and monitor locations of ground disturbing operations for at least five years following the completion of projects.

Wildlife

- Employ techniques to reduce impacts on fish and wildlife, including visitor education programs, restrictions on visitor and NPS activities, and law enforcement patrols.
- Implement a wildlife protection program. Standard measures would include project scheduling (season and/or time of day); project monitoring; erosion and sediment control, fencing, or other means to protect sensitive resources adjacent to project areas; disposing of all food-related items or rubbish; salvaging topsoil; and revegetating.
- Consult with National Oceanic and Atmospheric Administration Fisheries for projects within essential habitats for fish and other aquatic organisms.

- Consult with U.S. Fish and Wildlife Service for projects where listed species and their habitats occur.
- Protect known spawning aggregation areas for fish and other tar-geted organisms.

Special Status Species

Mitigation actions would occur during normal NPS operations as well as before, during, and after projects to minimize immediate and long-term impacts on rare, threatened, and endangered species. These actions may vary by project area, and additional mitigation measures may be added depending on the action and location. Many of the measures listed for vegetation, wildlife, and water resources would also benefit rare, threatened, and endangered species by helping to preserve habitat. Further mitigation efforts the NPS would perform include the following:

- Conduct formal and informal consultation for specific projects as necessary.
- Conduct surveys for rare, threatened, and endangered species as warranted.
- Locate and design facilities/actions/operations to avoid or minimize the removal of rare, threatened, and endangered species habitat; if avoidance is infeasible, minimize and compensate for adverse effects as appropriate and in consultation with the appropriate resource agencies.
- Plan work in areas in or near suitable threatened and endangered bird habitat as late as possible in the summer/fall.
- Conduct work outside of critical periods for the specific species when possible.
- Develop and implement restoration and/or monitoring plans as warranted; plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.
- For projects in or near streams, employ appropriate best manage-ment practices.
- Implement measures to reduce adverse effects of nonnative plants and wild-life on rare, threatened, and endangered species.
- Protect and preserve critical habitat features, such as nest trees, when-ever possible.

Fishing, Hunting, and Gathering

- Implement culturally sustainable practices that educate the public and ensure the continuation of the indigenous culture.

Scenic Resources

Mitigation measures are designed to minimize human made visual intrusions. These include the following:

- Use facilities such as boardwalks and fences to route people away from sensitive natural and cultural resources while still permitting access to important viewpoints.
- Design, locate, and construct facilities in ways that minimize adverse effects on scenic views.
- Provide vegetative screening to mask unwanted visual intrusion of facilities or infrastructure.

Sustainable Practices and Responses to Climate Change

Sustainable practices would be used in the selection of building materials and sources and building location and siting. Projects would use sustainable practices and resources whenever practicable by recycling and reusing materials, by minimizing materials, by minimizing energy consumption during the project, and by minimizing energy consumption throughout the lifespan of the facility produced. As required by NPS *Management Policies 2006*, new buildings would be designed to meet a minimum silver standard for LEED (Leadership in Energy and Environmental Design).

Park operations would reduce carbon emissions from a variety of sources including the use of vehicles and boats, purchasing more energy efficient vehicles, and using greener equipment (e.g. computers) in facilities (See also air quality section above).

Socioeconomic Environment

During future planning and implementation of the approved general management plan for Kalaupapa NHP, the National Park Service would pursue partnerships with native Hawaiian organizations, local communities, and state

and county governments to further identify potential impacts and mitigating measures that would best serve the interests and concerns of both the National Park Service and the local communities.

Sustainable Design and Aesthetics

Sustainable practices would be used in the selection of building materials and sources and building location and siting. Projects would use sustainable practices and resources whenever practicable by recycling and reusing materials, by minimizing materials, by minimizing energy consumption during the project, and by minimizing energy consumption throughout the lifespan of the facility produced.



Marks’ Concession (previously known as the Kamahana Store), owned by Gloria Marks. NPS photo.

Impacts on Cultural Resources

In general, the NPS would conduct cultural resource projects, inventories, and interpretation related to cultural resources as identified in Section 110 of the National Historic Preservation Act. This includes continuing to preserve and stabilize buildings, structures, and landscape features that contribute to the National Historic Landmark designation or are eligible for listing on the National Register of Historic Places. The NPS would continue active management and care of known cemeteries, including ongoing stabilization of known gravesites.

Under the regulations of the Advisory Council on Historic Preservation, a determination of adverse effect or no adverse effect must be made for affected National Register-listed or National Register-eligible cultural resources. The following definitions are provided:

No effect: There are no historic properties in the Area of Potential Effect (APE); or, there are historic properties in the APE, but the undertaking would have no impact on them.

No adverse effect: There would be an effect on the historic property by the undertaking, but the effect does not meet the criteria in 36 CFR Part 800.5(a) (1) and would not alter characteristics that make it eligible for listing on the National Register. The undertaking is modified or conditions are imposed to avoid or minimize adverse effects. This category of effects is encumbered with effects that may be considered beneficial under NEPA, such as restoration, stabilization, rehabilitation, and preservation projects. Undertakings determined to have no adverse effect by a qualified cultural resource manager can be documented under the streamlined process of the 2008 Programmatic Agreement.

Adverse effect: The undertaking would alter, directly or indirectly, the characteristics of the property making it ineligible for listing on the National Register. An adverse effect may be resolved by developing a memorandum of agreement in consultation with the SHPO, ACHP, tribes, other consulting parties, and the public to avoid, minimize, or mitigate the adverse effects (36 CFR Part 800.6(a)).

The thresholds of change for the intensity of an impact are defined as follows.

Negligible: The effects on cultural resources would be at the lowest levels of detection, barely measurable without any perceptible consequences, either beneficial or adverse to cultural landscape resources, historic buildings or structures, ethnographic, or archeological resources. For the purposes of Section 106 of the National Historic Preservation Act, the determination of effect would be no effect.

Minor: The effects on cultural resources would be perceptible or measurable, but would be slight and localized within a relatively small area. The action would not affect the character or diminish the character-defining features of a National Register-eligible or listed cultural landscape, historic structure, or archeological site, and it would not have a permanent effect on the integrity of any such resources. For the purposes of Section 106 of the National Historic Preservation Act, the determination of effect would be no adverse effect.

Moderate: The effects would be perceptible and measurable. The action would change one or more character-defining features of a cultural resource, but would not diminish the integrity of the resource to the extent that its NRHP eligibility would be lost. For the purposes of Section 106 of the National Historic Preservation Act, the cultural resources’ NRHP eligibility would be threatened and the determination of effect would be no adverse effect or adverse effect.

Major: The effects on cultural resources would be substantial, discernible, measurable, and permanent. For NRHP eligible or listed cultural landscapes, historic structures, or archeological sites, the action would change one or more character-defining features, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the National Register. For purposes of Section 106, national register eligibility would be lost and the determination of effect would be adverse effect.

All preservation, rehabilitation, and restoration treatments proposed under all of the alternatives would be in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties.

Values, Traditions, and Practices of Traditionally Associated People

Common to All Alternatives

Under all alternatives, the NPS would continue the existing anthropology program in which NPS staff, partners, and researchers engage patients in ethnographic research through oral histories and informal discussions. Collecting oral history information and conducting research on the native Hawaiian and patient communities would add to the body of knowledge regarding life at Kalaupapa. These actions would result in a benefit to the resources, traditions, and practices related to associated peoples of Kalaupapa.

Alternative A

The park staff recognizes that the patients, themselves, are an irreplaceable and their values, traditions, and practices are important to the character of the Kalaupapa community and resources. Most of the patients are elderly, and the next few years are crucial for documenting and gathering information from the patient community. As time allows, work with other groups would be conducted, such as children of patients who were taken away at birth and raised by relatives or in orphanages, family of patients, friends and long-time visitors to the park, long-time employees, and retired employees.

Under this alternative, the current park staff would continue to engage the patient community in actively documenting and preserving their history. This preservation effort would benefit Kalaupapa NHP in providing information for educational and interpretive programs as well as preserving the history for the future. However, with limited staff and the lack of a more formalized anthropology program, there will be limited opportunities to reach beyond the current patient community to document and preserve the history. Therefore, materials available for education and future generations would be limited by the program and staff constraints.

Alternative B

This alternative emphasizes Kalaupapa’s uniqueness, special character, and sacredness. The focus is on offsite education using a variety of media. Visitation to Kalaupapa would be similar to alternative A. The most notable difference between this alternative and alternative A is that the ethnography program

would be enhanced with additional staff and partners. The focus of the ethnography and oral history program would shift to include other important groups of individuals, such as children of patients who were taken away at birth and raised by relatives or in orphanages, family of patients, friends and long-time visitors to the park, long-time employees, and retired employees.

With an expanded ethnography program, Kalaupapa NHP would be able to create offsite educational opportunities such as the internet, exhibits, educational kiosks, brochures and printed materials, classroom curriculum, and podcasts and other digital media. These opportunities would provide a positive opportunity to share the stories of Kalaupapa with a larger more diverse audience using modern media and technology.

Alternative C

In this alternative, the ethnographic research would be managed similar to that of alternative B. The ethnographic program would be expanded to include additional staff and partners focused on gathering and documenting the stories of the patients, their families, kōkua, and long-time visitors and friends.

In addition to park staff, management and preservation efforts would be through volunteer service groups and by partnering with other agencies and organizations. The focus would be on experiential learning in a group setting.

Ethnographic information previously collected would be used to teach and educate the volunteer service groups and would also be used for interpretation and education. The visitor experience, whether an individual or group, would be enhanced overall.

Alternative D

Alternative D emphasizes the individual visitor experience through guided tours and limited self-exploration in selected areas of Kalaupapa. In this alternative, the resources, traditions, and practices related to associated peoples of Kalaupapa would be managed similar to that of alternative B. The anthropology program would be expanded to include additional staff and partners focused on gathering and documenting the stories of the patients, their families, kōkua, and long-time visitors and friends.

Information on resources, traditions, and practices related to associated peoples of Kalaupapa previously collected would be used to enhance the visitor experience through interpretation and education by creating such materials as brochures, walking tours, electronic media, and wayside exhibits.

Cumulative Impacts

Past, present, and anticipated projects that would contribute to impacts on resources, traditions, and practices related to associated peoples of Kalaupapa include the departure of the Department of Health and the patients from Kalaupapa. Once there are no longer living Kalaupapa patients and the Department of Health has moved out of Kalaupapa this would contribute to cumulative minor to moderate long-term adverse impacts on the resources, traditions, and practices related to associated peoples of Kalaupapa through the loss of living history, oral history, and the traditional presence and operations of the Department of Health at Kalaupapa.

The continuation of the cooperative agreements between the NPS and the State of Hawai’i Department of Land and Natural Resources (DLNR), Department of Transportation (DOT), and churches, and the lease agreement with the Department of Hawaiian Homelands (DHHL) provides the mechanism for the national park to operate. This would benefit the resources, traditions, and practices related to associated peoples of Kalaupapa in that the stories of Kalaupapa would continue to be documented and shared with current and future generations.

Conclusion

The impact on resources, traditions, and practices related to associated peoples of Kalaupapa under all alternatives would be beneficial because of the value of documenting these resources, in some cases where little or no information existed before. Documentation would increase base knowledge of Kalaupapa and its resources and has the potential to inform future management decisions. It would also aid in expanding an interpretation and education program that

would enhance visitor learning, enjoyment and satisfaction. The ongoing efforts to identify and to evaluate resources, traditions, and practices related to associated peoples of Kalaupapa and park programs to meet the needs of various groups would result in actions to preserve these resources. The overall result would be a long-term beneficial effect on the resources, traditions, and practices related to associated peoples of Kalaupapa.

For purposes of Section 106, the determination of effect for anthropological resources for all alternatives would be *no adverse effect*.

Archeological Resources

Common to All Alternatives

Under all alternatives, baseline documentation, including a research design and standard operating procedures for archeological monitoring, recording and data management would be prepared. These research, assessment, and monitoring activities would contribute to long-term preservation and enhanced understanding of cultural resources at Kalaupapa NHP.

Alternative A

Under this alternative, visitors would continue to follow existing Department of Health (DOH) rules and regulations. Access to most areas of the Kalaupapa peninsula would require an escort

and the number of visitors limited. Guided tours would be provided. These guidelines would continue to restrict visitor access in areas of sensitive archeological resources.

Alternative B

Under this alternative, the National Park Service would focus outreach to audiences at offsite locations (areas outside the park). The focus would be to interpret the archeology at Kalaupapa and produce educational materials for offsite use. There would be an increase in the effort of preservation and research of archeological sites. Because of the offsite nature of the visitors, sensitive archeological resources would be less likely to be negatively impacted.



Interior of ko'a, a fishing shrine. NPS photo.

Alternative C

Under this alternative the proposed archeological resources management actions are similar to alternative B, but include hands-on learning in research, stabilization, and other preservation treatments of archeological resources through stewardship activities. This would include increased research potential and training opportunities in preservation treatments and cultural resource management through partnering with universities and other entities to provide field training programs. All hands-on learning and partnering opportunities will be done with qualified professional oversight. This alternative would also provide greater capacity to complete Section 110 of the National Historic Preservation Act by increasing our knowledge of individual and contributing historic properties, and by completing National Register of Historic Places nominations.

Alternative D

Under this alternative the management actions for archeology would be similar to alternatives A and B, but demonstration projects targeted for visitor learning would be supported. Archeological sites within visitor-accessible areas of the park would be evaluated for their interpretive and educational value while balanced with the site’s sensitivity to increased visitor use. Should a site be too fragile, it would not be selected for interpretation. In addition, when an archeological research project or preservation treatment is active within visitor-accessible areas of the park, interpretation and demonstration projects would be established.

Cumulative Impacts

Archeological resources have, undoubtedly, sustained adverse impacts from natural and human forces over the lengthy occupation of Kalaupapa. Past actions and processes include trail maintenance, utilities and infrastructure construction and maintenance and modernization of some facilities. Cumulative natural impacts such as erosion and general weathering, coupled with human impacts have likely resulted in adverse impacts of unknown intensity.

Future planned projects including the construction of a memorial, the removal of unexploded ordnance, trail and trail bridge reconstruction, and the implementation of a fire management plan would likely result in minor to moderate long-term adverse effects to archeological resources. However, anticipated future projects could also benefit the archeological resources as long as they

provide for appropriate inventory, protection, avoidance, and preservation of cultural resources.

Conclusion

The impact to archeological sites under all alternatives would be beneficial because of the ongoing management and the preparation of baseline documents. Under alternative A, visitor access would be regulated therefore sensitive archeological sites could be protected.

The impact to archeological sites under alternative B would be beneficial because of the added level of documentation and designations, increased levels of preservation and research on archeological sites, and the focus of outreach to audiences outside the park.

Under alternative C, the focus on hands-on learning in research, stabilization, and other preservation treatments of archeological resources would be beneficial to the resources by creating a larger capacity to conduct this stewardship work.

Under alternative D, the focus on self-guided archeological interpretation exposes select archeological sites to increased visitor use and may cause a minor long-term adverse effect. However, there is also a beneficial effect by promoting education and the concept of resource protection to archeological sites through the demonstration projects for visitor learning.

For each alternative, the Section 106 determination of effect on archeology would be *no adverse effect*.

Cultural Landscapes

Alternative A

Under the no-action alternative, the park would continue to document and research Kalaupapa’s cultural landscapes and associated features; continue to preserve significant cultural landscape features; complete a cultural landscape report that prescribes preservations treatments; and continue the management of fruit and legacy trees within the settlement.

Alternative B

Under this alternative the cultural landscapes would continue to be managed similarly to how they are currently managed. Documentation and research of Kalaupapa’s cultural landscape features and rehabilitation of significant cultural landscape features would continue, a cultural landscape report that prescribes preservation treatments would be prepared, and management of fruit and legacy trees within the settlement would be continued. In addition, overall management of the cultural landscape would be enhanced. Such enhancements would include an improvement to the overall cultural landscape by developing and implementing a long-term strategy to halt fragmentation and incremental loss of cultural landscape features and integrity, increased support for research to identify cultural traditions expressed in the landscapes, a focus on stabilization so that further resources are not lost, enhanced management of fruit and legacy trees in coordination with Natural Resources staff, expansion of the nursery program to include fruit trees, legacy trees, and additional rare and endangered plants, and collaborative work with the natural resources staff to carry out an integrated pest management plan to protect sensitive areas.

Alternative C

Under this alternative, the proposed management actions are similar to alternative B, but include hands-on learning and preservation of the cultural landscape through stewardship activities. This would include targeted preservation maintenance through the use of volunteer or service groups or training opportunities for university or trade school students. Additionally, hands on learning and preservation treatment of cultural landscapes with partners would be supported and would focus on larger cultural landscape preservation and treatment projects through assistance with partners and service groups. All hands-on and partner opportunities would have qualified professional oversight.

The development of a cultural landscape report would identify long-term strategies to prevent fragmentation and the incremental loss of cultural landscape resources, and prescribe preservation treatments for significant landscape characteristics and features. Initially, the NPS would focus on stabilization of landscape features within the Kalaupapa and Kalawao Settlements, so that resources are not lost. The NPS would then initiate preservation or rehabilitation of landscape features that illustrate Kalaupapa’s many histories and allow new compatible uses within the settlement. Rehabilitation would also include

reestablishment of selected viewsheds to enhance understanding the larger landscape, particularly from overlooks and viewpoints.

Alternative D

Under this alternative the management actions for the cultural landscape would be similar to alternatives A and B, but visitors would have more freedom to explore Kalaupapa independently. In addition, selected viewsheds would be maintained to enhance the understanding of the larger cultural landscape.

Cumulative Impacts

Over the years, the cultural landscapes at Kalaupapa have been adversely affected by natural processes and wear and tear associated with visitor access, administrative use, and deferred maintenance. In addition, many of the buildings and structures that were part of the cultural landscapes during the historic period were removed from Kalaupapa. Other historic buildings have been altered or are in a state of decline, creating moderate, long-term, adverse effects.

The departure of the Department of Health and the Kalaupapa patients would be a minor long-term adverse effect on the overall historic character of Kalaupapa. The NPS would continue to tell the story of the DOH and patients, but their absence from the community marks a dramatic and noticeable change in the character of the cultural landscape.

In the future, the continuation of the cooperative agreements and lease agreement with state agencies would allow the NPS to continue to manage the physical settlement of Kalaupapa with emphasis on preservation of historic structures and the cultural landscape. Resource management activities would continue to consider the natural resources values of cultural landscapes as well as their culturally important character-defining features. Overall, the cumulative effects would be beneficial.

Conclusion

Under alternative A, the impact to the cultural landscape would be beneficial because of the continued documentation, preservation and management of cultural landscape features.

Under alternative B, the impacts on the cultural landscape would be beneficial because of the enhancement in management, stabilization, and other preservation treatments.

Under alternative C, the impacts on the cultural landscape would be beneficial because of the enhancement of management, stabilization, and other preservation treatments. The focus on hands-on learning in research, stabilization, and other preservation treatments would also allow a greater capacity to conduct this stewardship work.

Under alternative D, the impacts on the cultural landscape would be beneficial because of the enhancement of management, stabilization, and other preservation treatments; as well as maintaining cultural viewsheds.

Under all the alternatives, the Section 106 determination of effect on the cultural landscape would be *no adverse effect*.

Historic Structures

Buildings and structures defined as “historic” are those that are listed or are eligible for listing on the National Register; this includes contributors to the Kalaupapa Leprosy Settlement National Historic Landmark District.

Common to All Alternatives

The NPS would continue to conduct condition assessments of historic structures. DOH would continue to transfer use of buildings and structures to the NPS as DOH continues to transition out of Kalaupapa. Kalaupapa NHP would continue to stabilize, preserve, and rehabilitate historic structures and buildings in accordance with the *Secretary of Interior’s Standards for the Treatment of Historic Properties* on a case-by-case basis as funding allowed. Historic buildings not used for park or partner functions and not funded for preservation and rehabilitation would be stabilized or mothballed until future uses are identified. While all contributing buildings would be stabilized at a minimum, stabilization is not a long-term treatment.

Kalaupapa National Historical Park and current partners would continue to share in the preservation and rehabilitation of historic buildings used by those

partners. The park would seek new partners to share in the preservation and rehabilitation of other historic buildings and structures.

Given the large number and varying conditions of historic structures, treating each historic structure could take many years, and cyclic maintenance would be required. These actions would result in long-term preservation of select historic structures though there could be minor to moderate adverse, long-term impacts on historic buildings and structures in the event that uses are not identified and preservation treatments are not employed in a timely manner.

Alternative A

Management of Kalaupapa National Historical Park would continue relatively unchanged from the current direction in the near term. With the expected departure of DOH in the long term, dozens of buildings currently occupied by DOH would become vacant and would not have an identified future use or function. These buildings would be stabilized until future needs for their use are determined. Without a systematic plan for their future uses, these buildings could risk long-term deterioration, and loss of structures could be a possibility.

Alternative B

Maintaining Kalaupapa’s spirit and character is the primary focus of this alternative. The preservation of the historic buildings would be prioritized according to the focus of this alternative and their assessed conditions. Historic buildings considered best suited to meet the needs of this alternative would be rehabilitated according to a historic structures report(s) consistent with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties* and adaptively re-used for visitor, partner use, park operations, and interpretive exhibits. These treatments would ensure long-term preservation of these structures. Buildings that do not have an identified future use would be stabilized or mothballed until a use is determined, at which time the building would be treated according to its identified function.

Alternative C

Entrusted responsible care and management of Kalaupapa’s lands is the focus of this alternative. To implement this focus, actions to increase the direct practical hands-on learning and preservation treatments of historic structures through stewardship activities would be instituted. All of the actions of alternative B are proposed for this alternative as well. Buildings used by partners and

visitors for lodging, visitor services, and orientation may require rehabilitation that will address health, life safety, and accessibility requirements.

Volunteers, work groups, and preservation students could participate in supervised historic preservation treatments of buildings. These activities could build a stewardship ethic for Kalaupapa’s buildings and structures.

These treatments, uses, and involvement by non-NPS individuals and groups would ensure long-term preservation of these structures. An agreement would be developed that would outline the responsibilities of the user for maintaining the building to specified standards as approved by the National Park Service. Buildings that do not have an identified future use would be stabilized or mothballed until a use is determined, at which time the building would be treated according to its identified function.

Alternative D

Personal connections to Kalaupapa through visitation by the general public are the focus of this alternative. All of the actions of alternative C are proposed for this alternative. This alternative accommodates the greatest number of visitors to Kalaupapa, which could help build a stewardship ethic for Kalaupapa’s buildings and structures.

Cumulative Impacts

Over the years, historic structures at Kalaupapa have been adversely affected by natural processes and wear and tear associated with administrative and residential use (and sometimes lack of use) and deferred maintenance. Because people reside at Kalaupapa, changes have been made to provide modern amenities and services for the community. Some of these changes have resulted in the destruction or removal of historic structures.

Under alternative A, management activities would continue to consider the significance of the historic structures, and they would continue to be preserved and maintained. This consideration would result in cumulative beneficial impacts on historic structures. Additionally, deferred maintenance and the lack of resources available to maintain the historic structures would result in cumulative minor to major long-term adverse impacts because of resource damage and loss.

Cumulative impacts for alternatives B, C, and D are similar to alternative A except that they would provide greater preservation to historic buildings because of a developed treatment plan and continued use of the buildings. The cumulative impacts on historic buildings under alternatives B, C, and D would result in both minor to moderate long-term adverse and beneficial.

Conclusion

Additional Section 106 reviews may be necessary to implement site specific actions, including rehabilitation, of historic structures.

Under alternative A, stabilization of historic structures, continued condition assessments, and the development of a prioritized list of buildings for preservation needs is a good basis for ongoing management of the buildings and structures. However, because many of the buildings would be under-utilized or not undergo rehabilitation with this alternative, there could be a minor to major adverse, long-term impact to historic buildings and structures.

Under alternative A, the Section 106 determination of effect on the historic structures would be an adverse effect.

Under alternative B, stabilization of historic structures and the development of historic structures reports that emphasizes preservation and rehabilitation would benefit the continued preservation of the buildings. The preservation and rehabilitation, in accordance with the Secretary Standards, of some historic



State employee residence at McVeigh Home. NPS photo.

structures for visitor facilities, partner uses, park operations, and interpretive exhibits would generally be beneficial to the buildings because this would aid in their preservation. However, because some of the buildings would be under-utilized or not undergo rehabilitation, these buildings would have a higher risk of deterioration. Additionally, because rehabilitation would make changes to buildings to accommodate new uses and to address accessibility, life safety, and utility upgrades, there could be a minor to moderate long-term, adverse impact to the buildings.

Under alternatives C and D, stabilization of historic structures and the development of historic structures reports that emphasizes preservation and rehabilitation would benefit the continued preservation of the buildings. The preservation and rehabilitation in accordance with the Secretary Standards, of some historic structures for visitor facilities, partner uses, park operations, and interpretive exhibits would generally be beneficial for long-term preservation of the buildings because this would aid in their preservation. Additionally, many buildings could be used for overnight visitor lodging which would require them to be rehabilitated and would address accessibility, life safety, and utility upgrades. If they are not used for overnight lodging or another use, these buildings could be under-utilized, not preserved or rehabilitated, and would have a higher risk of deterioration. Because some of the buildings could be under-utilized or not undergo preservation treatments and, because rehabilitation would make changes to buildings to accommodate new uses, Alternative C and D may result in minor to moderate long-term, adverse impacts to the buildings.

For alternatives B, C, and D the Section 106 determination of effect on the historic structures would be *No Adverse Effect*.

Museum Collections

Common to All Alternatives

The Kalaupapa NHP *Museum Management Plan* would guide the management of the park collections under all alternatives. Consultation with patients and ‘ohana to better understand objects in the museum collection would be implemented. The museum archives and manuscript collections would continue to be documented, preserved and conserved. Following the museum management plan and the continued preservation efforts would result in beneficial effects for the Kalaupapa museum collections.

Alternative A

Under this alternative, the park museum management program would continue to improve the quality of documentation, preservation, and implementation of collections for use by the patient community and their ‘ohana, park staff, and the public. The museum program would continue documentation, preservation and conservation of museum archives and manuscript collections. Consultation with patients and ‘ohana to better understand objects in collections would continue. Under this alternative, the museum program would manage museum collections based on the most current museum management plan. The current museum collection facility would continue to be monitored and maintained to provide for the preservation and protection of the collections as directed by NPS museum management standards.

Alternative B

Under alternative B, the museum management program would implement the scope of collection plan to direct acquisition and collection development. Media products and digital tools that support research and provide offsite visitor education would be developed. Kalaupapa-related collections housed in offsite repositories would be identified and finding aids developed to support the increased emphasis on ethnographic research with patient resident ‘ohana. Kalaupapa NHP would partner with repositories to house other Kalaupapa museum collections. Under this alternative, the National Park Service would focus outreach to audiences at offsite locations (outside of Kalaupapa), but selected museum collections displayed within historic structures would be used as interpretive exhibits.

Alternative C

Under this alternative, the proposed management actions are similar to alternative B, but include hands-on learning and preservation of museum collections through stewardship activities. This would include collections management projects through the use of volunteer or service groups or training opportunities for university students. Partners would be involved in managing, documenting, and conducting research on collections and seeking creative ways for visitors to interact with collections, such as an artist-in-residence program inspired by collections. The NPS and its partners would develop digital tools, finding aids, and media products that support research and offer creative ways for visitors to interact with the collections both onsite and offsite. Museum collection items could be displayed in exhibits within historic structures and at the visitor

center as appropriate. All hands-on volunteer or partner opportunities will be supervised by qualified professionals.

Under this alternative, any stabilization or preservation treatment to the museum collections would be in accordance with the NPS museum collection standards, though much of this work would be subject to funding availability.

Alternative D

Under this alternative, documentation, preservation, and conservation of museum archives and manuscript collections would continue. Consultation with patients and ‘ohana would be conducted to better understand the objects in the collections. Management of the museum collections would be similar to alternatives A and B, but the collections would be accessed for greater visitor engagement including educational and interpretive programs focusing on the museum collections.

Under this alternative, any conservation or preservation treatments to the museum collections would be in accordance with the NPS museum management standards, though much of this work would be subject to funding availability.

Cumulative Impacts

The Kalaupapa museum collections are a valuable component to documenting and telling the story of Kalaupapa. The anticipated future actions that would impact the museum collections include the departure of the Kalaupapa patients and the Department of Health from Kalaupapa. It is likely that once patients are no longer living at Kalaupapa their families would donate records and objects representing their lives to the museum. This would result in the beneficial growth of the collections. Additionally, continued and future natural and cultural resource research projects would continue to add objects, specimens, and records to the museum collection. The cumulative impacts for all alternatives would be beneficial.

Conclusion

Under alternative A, the impact to museum collections under the no-action alternative would be beneficial because of the continuation of current preservation and documentation of the collections meets NPS museum management standards.

The impacts on the museum collections at Kalaupapa under alternative B would be beneficial because of the implementation of the scope of collection plan. The increase in exhibition of museum collections in historic structures would have long-term minor to moderate, adverse impact on collections because the current climate conditions that exist within the historic structures do not

meet NPS Museum Management Standards for exhibits. Future mitigation of historic structures could correct these deficiencies to create the proper environment for the display of the park’s museum collections.

The impacts on the museum collections under alternative C would be beneficial because of hands-on learning opportunities for proper museum collection conservation and preservation. Increased access to the museum collection and archives could result in adverse minor to moderate, long-term impacts on the museum collections due to handling, environmental exposure, and exhibition of the museum collection.

The impacts on the museum collections through increased access and use under alternative D would be beneficial because of the support the collections would provide to the park interpretation program and most importantly the consultation with patients and ‘ohana to generate a high level of engagement for visitors.

Under all the alternatives, the Section 106 determination of effect on museum collections would be *no adverse effect*.



Pre-contact Hawaiian artifacts are stored in the park’s museum collection. NPS photo.

Impacts on Natural Resources

Common to All Alternatives

The goals and strategies that are common to all action alternatives include guidance on a variety of topics that would have an impact on natural resources. These topics include water resources and hydrologic processes, marine resources and fishing, terrestrial resources, and climate change. For example, the Natural Resources Management Program priorities in the terrestrial realm of conducting research, inventory, monitoring, feral animal control, fencing, rare species stabilization, incipient alien species removal, and the pursuit of East Molokai Watershed Partnership goals would improve the integrity of all natural resources. The East Molokai Watershed Partnership goals include:

- Reduction of feral animal and invasive weed populations
- Fences to protect upper forests from feral animal intrusion
- Monitoring systems that help guide and document management actions
- Community outreach that engages, educates, and gains support of the local communities
- Continual development of the partnership through fundraising, capacity building, and landowner expansion
- Involvement with fire (Molokai Fire Task Force) and island invasive species efforts (Molokai subcommittee of the Maui Invasive Species Committee)

The partnerships policy would assist the National Park Service in developing collaborative arrangements with park partners, whose programs have shared goals, including preservation of natural resource management. The trails policy includes goals on sustainable trail design and best management practices, which would assist the National Park Service in improving habitat quality and integrity by reducing impacts from erosion, exotic and invasive species, and habitat fragmentation. The North Short Cliffs National Natural Landmark (designated in 1972) will continue to be protected and preserved following National Natural Landmark guidelines. These actions would contribute to long-term preservation of natural resources through inventory, monitoring, active resource management, and stewardship of the areas’ natural resources.

Air Quality

Alternative A

Baseline greenhouse gas emissions for Kalaupapa NHP in 2009 are estimated at 5,249 metric tons of carbon emissions (MTCE). The largest contributors of greenhouse gases are the vehicles used by workers around the settlement. Emission levels would decline slightly from present levels with alternative A. Even though the overall number of vehicles and equipment in the future would be similar to present levels, replacement machinery would be more fuel efficient.

No monitoring of air quality occurs currently under alternative A. Lack of monitoring air quality parameters would result in a failure to capture information about the direct consequences of pollution levels on water, marine, and terrestrial resources along with visitor opportunities.

Common to Alternatives B, C, and D

These alternatives would:

- Require baseline monitoring of air quality.
- Acknowledge that increasing anthropogenic CO2 emissions would influence air quality; the park would mitigate impacts of climate change by reducing overall energy consumption. This would be accomplished by purchasing fuel efficient vehicles, increasing use of environmentally friendly transportation activities such as bicycles, and reducing reliance on outside energy sources such as gas and electricity, as feasible.
- Kalaupapa NHP would implement Molokai and NPS initiatives that improve air quality such as the installation of energy efficient CFL light bulbs.

Alternative B

It is anticipated that this alternative would have the fewest visitor opportunities within the park and therefore have the lowest emission levels of any of the alternatives.

Alternative C

It is anticipated that this alternative would have greater visitor opportunities coupled with a higher number of visitors within the park and therefore have higher emission levels than alternatives A and B.

Alternative D

It is anticipated that this alternative would have the greatest visitor opportunities within the park and therefore have the highest emission levels of any alternative.

Cumulative Impacts

For alternative A, past and present sources of impacts on air quality in Kalaupapa are motor vehicles and mechanized equipment. It is difficult to ascertain the extent of cumulative impacts on air quality without baseline data, but given the remoteness and prevalence of persistent wind patterns, it is anticipated that the continuation of park operations and any future construction projects would result in a negligible cumulative impact to air quality. The increased use of fuel efficient vehicles and alternative transportation would be a benefit to the cumulative impacts on air quality for alternatives B, C, and D.

Conclusion

For alternative A, emission levels in the park are projected to decrease in the future, but would still result in long-term and adverse impacts on air quality that would be negligible compared to the region or nation. The lack of baseline information about air quality, however, would result in a poor understanding of how emission levels would impact natural and cultural resources along with visitor opportunities across all regions of the park. This lack of information would result in a short-term, minor, adverse effect.

For alternatives B, C, and D, the initiation of monitoring would be a benefit to the park by contributing to knowledge of air quality and identifying areas with different levels of air quality. Areas with good air quality as defined by EPA standards, such as the upland rainforest would have restricted access to ensure that it remains intact. Mitigation efforts would be concentrated in areas with low air quality that might include maintenance facilities within the settlement. Identifying areas of good air quality may improve the safety of residents and visitors.



Kalawao, c. 1898. Photo courtesy of Bishop Museum.

These areas would be maintained by minimizing sources of emissions, and thus result in a benefit to the park.

Alternative B would have the lowest emission levels of any alternative due to the fewest visitor opportunities, smallest number of construction projects, and the lowest level of park operations leading to negligible and potentially beneficial impacts on air quality.

Alternative C would have intermediate emission levels of the three alternatives due to the increase in visitor opportunities, construction projects, and park operations leading to negligible impacts on air quality.

Alternative D would have the highest emission levels of the three alternatives due to the largest number of visitor opportunities, construction projects, and park operations leading to minor long-term adverse impacts on air quality.

Soundscapes

Alternative A

Currently, no continuous monitoring of sound levels occurs under alternative A although a baseline study of the soundscape has been conducted. Lack of monitoring sound levels would fail to capture information about the direct consequences of air and vehicular traffic

on aquatic, terrestrial, and cultural resources along with visitor opportunities. Under alternative A, the NPS would continue management of soundscapes by utilizing guidance from existing regulatory agencies (e.g. FAA), existing audio and overflights regulations, NPS management policies and director’s orders on soundscape management, and the air traffic management plan. The NPS would continue to work with the Marines to manage aircraft activity over the park.

Alternative B

The NPS would initiate acoustic monitoring through the NPS soundscapes program. The NPS would work to restore the natural soundscapes by reducing

the number of feral animals and increasing the number of native species in the park. The existing soundscape levels in developed areas would be quantified so that future uses and sound level are compatible with the historic character of the park. This would include working to control modern human noises that may impact the soundscape. The NPS would continue to work with the FAA to manage scenic overflights and to require that aircraft maintain an altitude of at least 1600 feet above ground level to preserve Kalaupapa’s sacred nature and ambience. The NPS would continue to work with the Marines to manage aircraft activity over the park.

Alternative C

Alternative C is similar to alternative B. The primary difference in this alternative would be the increased visitor levels which would concomitantly increase noise levels in high traffic areas.

Alternative D

Alternative D is similar to alternative C. The primary difference in this alternative would be the highest visitor levels for any alternative and the corresponding highest noise levels.

Cumulative Impacts

For all alternatives, at various times in the past, present, and future, noise caused by construction machinery or historic preservation projects within Kalaupapa would result in short-term minor to moderate adverse effects to the soundscape. For example, removal of the unexploded ordnance would likely cause short-term minor to moderated adverse effects within Kalaupapa. The continued existing level of Department of Defense training operations at the Kalaupapa airport would result in long-term moderate adverse impacts to the soundscape of Kalaupapa. These effects, added to noise caused by visitors and park operations would result in short- and long-term minor to moderate cumulative adverse noise effects.

Cumulative impacts to the soundscape under alternative B differ from the other alternatives in that Alternative B limits visitation to Kalaupapa, there may be less of an adverse impact from visitors and park operations in the future on the soundscape. In addition, the use of quieter vehicles and machinery in the future under alternatives B, C, and D would result in negligible cumulative impacts to the soundscape.

Cumulative impacts to the soundscape under alternative C would be slightly higher than alternatives A and B due to the higher visitation levels. While alternative C may have higher numbers of visitors, the use of quieter vehicles in the future would result in negligible cumulative impacts to the soundscape, especially considering that past population levels in the settlement were much higher.

Cumulative impacts to the soundscape under alternative D would be higher than the other alternatives due to the highest visitation levels. The use of quieter vehicles in the future would result in minor cumulative impacts to the soundscape, although it is anticipated that this alternative would still have a quieter soundscape than in the past when population levels in the settlement were much higher.

Conclusion

At present, there is minimal management of the soundscape other than referring to guidance from existing regulatory agencies, and this would continue under alternative A. The management of the soundscape would be a benefit to nearly all of the resources within Kalaupapa. The maintenance of the soundscape offers the visitor the time and serenity to be reflective and thoughtful about the history and story of Kalaupapa.

Under alternatives B, C, and D, the maintenance and monitoring of the soundscape at Kalaupapa in addition to the reduction in noise levels of vehicles and machinery would be a benefit to the visitor as he or she would be able to experience both the natural and cultural soundscapes. Monitoring of soundscapes would benefit the native wildlife species so that their habitat could be maintained or restored if previously altered and can provide beneficial information to maintain the quiet nature of the area. Existing regulations concerning scenic overflights would help protect soundscapes, resources, and visitor experience, though additional guidance could be necessary to further protect the soundscapes at Kalaupapa.

Under alternatives C and D, increased visitation could result in higher noise levels than in alternative B.

Lightscapes

Common to All Alternatives

Visitors to Kalaupapa NHP remark how prevalent the stars are in the night sky. A “natural lightscape,” such as a dark night sky, is an environment that is undisturbed by light and air pollution. Dark night skies have natural, cultural, and scenic importance.

The NPS would work to improve natural dark night sky conditions, protect the park from light pollution, and reduce electrical power usage by using sustainable design and technologies in the park. The NPS would conduct baseline night sky and lightscapes monitoring in order to quantify the current conditions. Any changes to lighting in and around the park can primarily be mitigated through the use of best practices as mentioned elsewhere in the plan.

Cumulative Impacts

There would be no cumulative impacts to the lightscape at Kalaupapa from past, present, and future projects.

Conclusion

Increased monitoring, mitigation, and actively working to improve night sky conditions would result in a beneficial effect on the lightscape at Kalaupapa.

Water Resources and Hydrologic Processes

Common to All Alternatives

Monitoring and research to identify high water quality areas in the ocean, streams, Crater Lake, and wetlands would continue. The ocean stewardship policy of the NPS includes management strategies and objectives that would help to protect ocean resources through improved research and collaborative management with other state and federal agencies.

Diversion of the Waikolu stream would continue under all alternatives with a minor, long-term adverse impact on stream fauna and flora. Kalaupapa NHP would continue water treatment on drinking water.

Climate change will significantly impact the water resources and hydrologic processes by decreasing precipitation, increasing storm frequency, increasing extreme rainfall events, increasing temperature, and creating more extreme temperature conditions. Therefore, park management actions and mitigation strategies will focus on impacts on natural and cultural resources as well as overall park operations.

Alternative A

Under the no-action alternative, the presence and current maintenance of existing facilities (including structures, roads, and trails) would continue to cause localized impacts on water quality due to pollution from runoff and turbidity from soil erosion.

Structures would remain in the 100-year floodplains of Waianae River resulting in adverse impacts on the floodplain function and to the structures themselves. Retention of these facilities would continue to slightly affect the flow of water during floods and the capacity of the floodplain to store floodwaters. Outside of the settlement, the lack of groundcover due to disturbances from invasive vegetation and feral animals would be the primary causes of sediment entering the streams and ultimately the ocean. The no-action alternative would continue with current levels of feral ungulate removal and the out planting of native vegetation with minimal improvement on areas with poor water quality. Vehicle use at parking areas and on roadways throughout the park would continue to influence water quality from runoff that contains chemical contaminants and also cause erosion of soils resulting in turbidity. National Park Service efforts to provide educational and participatory stewardship programs would be a benefit to water resources and hydrologic processes due to increased public understanding and support for resource protection and management.

Current projects to improve natural habitat values and ecosystem function, such as those at the historical fishpond (wetland restoration), Kalawao cliff trail (coastal vegetation restoration), Kūka‘iwa‘a (coastal vegetation restoration) and Pu‘u Ali‘i fencing/feral ungulate removal (upland rainforest preservation), would benefit water resources and hydrologic processes because they would improve and restore the function and integrity of natural hydrologic systems

Within Kalaupapa, visitor use and NPS operations would continue to contribute nutrients and sediment to the adjacent marine waters through runoff.

Runoff from impervious surfaces such as existing structures and paved roads would also contribute to this issue. There is the potential that the fuel reduction project around the settlement could expose more area to erosion from the clearing of vegetation, but this is considered negligible due to the rapid re-vegetation of open areas. Vessels, primarily the barge operation and to a small degree the NPS dive boat, would impact water quality by introducing hydrocarbons and other chemicals into the ocean, as well as potentially introducing alien organisms.

Common to Alternatives B, C, and D

These alternatives would:

- Create a variety of management zones that would assist in the protection of water resources and hydrologic processes.
- Restoration and maintenance of historic structures would have impacts on water quality from sedimentation and runoff during construction activities.
- Develop a sustainable trail system and remove and restore unneeded and unsustainable roads and trails.
- Benefits to stream character, water quality, wetlands, floodplains, and watershed processes would occur from restoration projects such as the wetland area and crater stabilization. If these more substantial efforts are accomplished, the overall hydrologic character and function would be improved by creating a more natural watercourse that would reduce the potential for erosion, re-create floodplain connectivity, restore wetland functions, and contribute to improvements in restoring watershed processes and water quality.
- Activities such as the removal of feral ungulates and the outplanting of native vegetation would improve areas with poor water quality. These activities would be at a larger scale than the no-action alternative. Impacts from NPS educational and stewardship programs would be higher than those described in the no-action alternative since these programs would be enhanced in alternatives B, C, and D.

Alternative B

This alternative would protect the largest area of water resources and hydrologic processes by zoning 62% of the park as Integrated Resource Management and 34% of the park as Sensitive Resources.

Impacts on water-related resources from the continued presence and maintenance of existing roads and trails under alternative B would be less than the no-action alternative because impacts on water quality caused by erosion from unsustainable trails and roads would be reduced through reduction of current traffic flow.

Visitor access and use would be restricted throughout the park under alternative B, potentially resulting in some decrease in erosion along trails and at primary visitor use areas that could have impacts on water quality.

New and/or improved visitor facilities, including a new visitor center topside, would have adverse impacts on water quality from increased erosion and sedimentation, and the potential for chemical contamination resulting from inadvertent chemical spills from heavy equipment at construction sites. In the long-term, impacts on water quality could be beneficial by moving pollutants in parking lots and other developed features offsite.

Within the settlement, impacts from visitor use and NPS operations on water quality would be approximately the same as those described in the no-action alternative. Even though park activities would increase, there would be a reduction in state activities to offset the difference, resulting in similar water quality impacts such as nutrient and sediment inputs into marine waters.

Alternative C

This alternative would protect an intermediate area of water resources and hydrologic processes compared to the other alternatives by zoning 49% of the park as Integrated Resource Management and 46% of the park as Sensitive Resources. In alternative C, access to sensitive resources would not be as limited as alternative B, but would still preserve watershed areas with high water quality such as Waikolu Valley and the headwaters in Pu‘u Ali‘i. Visitor access and use would be increased throughout the park under alternative C compared to B, potentially resulting in an increase in erosion along trails and at primary visitor use areas that could have impacts on water quality.

Impacts from NPS educational and stewardship programs would be higher than those described in alternatives A and B since these programs would be enhanced in this alternative. There would be a benefit to water quality from

the stewardship groups because many of their activities would be centered on preservation projects.

Within the settlement, impacts from NPS operations on water quality would be approximately the same as those described in alternatives A and B. Even though park activities would increase there would be a reduction in state activities to offset the difference, resulting in similar water quality impacts such as nutrient and sediment inputs into marine waters.

Alternative D

This alternative would protect the smallest area of water resources and hydrologic processes compared to the other alternatives by zoning 60% of the park as Integrated Resource Management and 34% of the park as Sensitive Resources.

Visitor access and use would be highest throughout the park under alternative D compared to the other alternatives, resulting in an increase in erosion along trails and at primary visitor use areas that would have impacts on water quality. Impacts from NPS educational and stewardship programs would be highest compared to those described in the other alternatives since these programs would be enhanced in this alternative. Within the settlement, impacts from NPS operations on water quality would be slightly higher than those described in the other alternatives, primarily because of higher visitation. Consequently, water quality impacts such as nutrient and sediment inputs into marine waters would be highest.

Cumulative Impacts

The Common to All cumulative impacts of climate change due to increasing anthropogenic CO₂ emissions on water resources and hydrologic processes would be long-term, major, and adverse. It is anticipated that these cumulative impacts from climate change would be the dominant factor influencing water resources and hydrologic processes in the park.



Researchers measure the cross section at the mouth of Waikolu stream. NPS photo.

In alternative A, the cumulative impacts of existing facilities within the settlement would have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes. It is anticipated that the impacts would decrease over time given the decline in human population since the height of the settlement in the early 1900s. Outside of the settlement, the cumulative impacts on water resources and hydrologic processes would be negligible except for the water diversion of Waikolu stream which would be long-term, minor, and adverse. Continued monitoring of the stream flow and biota will help determine if the adverse impacts are more than minor.

The common to all cumulative impacts of restoration activities under alternatives B, C, and D would be beneficial.

In alternative B, the cumulative impacts of existing facilities within the settlement would be similar to alternative A and have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes. It is anticipated that the impacts would be decreasing over time given the decline in human population since the height of the settlement in the early 1900s. Outside of the settlement, the cumulative impacts on water resources and hydrologic processes would be negligible

In alternative C, the cumulative impacts of existing facilities within the settlement would be

greater than alternatives A and B given the expected increase in visitation levels, but still only have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes.

In alternative D, the cumulative impacts of existing facilities within the settlement would be greatest compared to the other alternatives given the highest visitation levels, and therefore have long-term, moderate, adverse, and localized impacts on water resources and hydrologic processes.

Conclusion

The continued monitoring and research of the water resources at Kalaupapa as well as the drinking water treatment under all alternatives would be a benefit to the preservation and protection of water resources. The continued diversion of Waikolu stream, however, would generate a long-term, minor, adverse impact one the stream fauna and flora.

The continued existence of structures and facilities in some areas of the park would have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes under alternative A.

Projects to improve natural habitat values and ecosystem function would have beneficial impacts on water resources and hydrologic processes.

Generally, long-term, moderate adverse impacts would occur from the continued presence and maintenance of existing facilities, the continued presence of the existing volume of vehicular/vessel traffic, and continued patterns of visitor use. Beneficial impacts would occur from monitoring activities, restoration of natural areas, and from education and stewardship activities.

The removal and reclamation of facilities and structures, the stabilization of natural wetland and dryland forest (e.g. Kauhakō crater) areas, and restoration of watershed processes under alternatives B, C, and D would result in beneficial impacts on water quality, while the construction, maintenance, or removal of trails and facilities would have short-term, minor, adverse impacts on water quality.

Generally, adverse impacts would occur from new or existing facilities. Beneficial impacts would occur from trail and road maintenance and the restoration of disturbed sites.

Under alternative B there would be beneficial impacts on water quality at the topside visitor center from moving the primary visitor use area offsite and reducing onsite visitor opportunities. There would be short-term, minor, adverse impacts on water quality during construction.

Generally, adverse impacts would occur from new offsite facilities, but onsite activities would have the fewest adverse impacts compared to the other alternatives.

For alternative C there would be long-term minor, adverse, localized impacts on water quality from the increase in visitor facilities onsite. There would be short-term, minor, adverse impacts on water quality during construction.

With alternative D there would be long-term, minor, adverse, localized impacts on water quality from the highest level of visitor use onsite compared to the other alternatives.

Marine Resources—Coastal Reef, Habitats, and Wildlife

Common to All Alternatives

Monitoring of the coral reef habitats and associated fish communities would continue under the NPS Inventory and Monitoring program. These activities would increase our knowledge and understanding of habitats and identify high quality reef areas with high values of coral cover, coral larval settlement, fish abundance, and fish biomass. The monitoring efforts would be beneficial to the ethnographic, socioeconomic, and the marine resources themselves as well as the interpretation and education activities. In addition, the information would be useful in understanding the effects of climate change on the marine resources.

Future plans include monitoring and research in areas of maritime archeology, community ecology, and different wildlife species than those currently being examined. Exploring the establishment of a marine managed area encompassing significant resources such as areas with high fish biomass would have beneficial impacts on ethnographic resources by protecting traditional uses long-term. There would also be adverse impacts by limiting take and potentially types of cultural practices allowed. Other beneficial impacts of this action include protecting archeological resources such as fish heiaus and special status species (See Special Status Species) and establishing joint enforcement with the State of Hawai‘i. In addition, there would an increase in our knowledge of the marine resources for interpretation and education with concomitant benefits to visitation by increasing attention and interest in the park.

Climate change will significantly impact marine resources by increasing ocean temperature leading to detrimental events such as coral bleaching, increasing storm frequency and severity, increasing sea level, and altering ocean chemistry, particularly pH, which is expected to become more acidic. Therefore, park management actions and mitigation strategies will focus on impacts on natural and cultural resources as well as overall park operations.

Alternative A

Actions under alternative A would benefit from the protection of marine habitats and wildlife by maintaining the existing community regulations and capping overall visitation onsite to 100 people.

Common to Alternatives B, C, and D

The establishment of a marine managed area would have adverse impacts on marine use by limiting visitor access and by increasing enforcement activities.

Alternative B

This alternative would be the most beneficial for protection of marine habitats and wildlife by protecting the largest areas of sensitive resources and limiting onsite visitation.

The primary adverse impact from this alternative would be on ethnographic resources by limiting take and potentially types of practices allowed. There would also be adverse impacts on visitor access restrictions and NPS operations by increasing enforcement activities.

Alternative C

Restoration activities conducted by service groups, such as the removal of alien species in intertidal areas, would have additional benefits on marine resources and special status species in this alternative compared to alternatives A and B. There would be adverse impacts on the resources from the inadvertent col-

lection of native species during the restoration activity. Visitor opportunities, interpretation, and education would benefit from this alternative.

This alternative would monitor resources using both traditional and contemporary methods providing benefits to ethnographic resources by sustaining traditional practices, interpretation and education, and visitor opportunities. There would be adverse impacts on the marine resources from the low level of extraction associated with this alternative since more visitors would be fishing in more areas around the park and targeting key resource species. The benefits associated with this alternative would be moderate compared to those provided in the other alternatives.

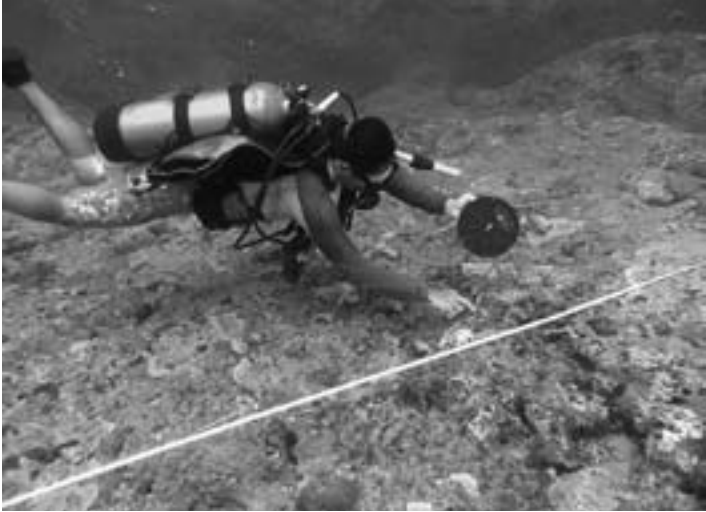
Alternative D

The establishment of a marine managed area would have minimal impacts on visitor access and visitation since this alternative would have the highest levels for these resource categories. Given the high level of visitation, impacts on the marine resources and increased enforcement activities would evident.

As described in alternative C, restoration activities would provide benefits to marine resources and special status species, but this alternative would engage the general public through demonstrations rather than using service groups. Therefore, the benefits would be lower for the resources, but greater for visitor opportunities and interpretation and education. There would

be little to no impacts on the resources from the inadvertent collection of native species and on visitor safety during the restoration activity.

As described in alternative C, both traditional and contemporary methods would be used to monitor resources providing benefits to ethnographic resources, interpretation and education, and visitor opportunities. There would be a minimal impact on the marine resources from the low level of extraction associated with this alternative. There would also be minor concerns about the safety of the visitor engaged in these activities since a higher number of visitors



NPS diver taking measurements on the coral reef. NPS photo.

would be allowed greater access to areas in the park than in the other alternatives. The benefits to the marine resources associated with this alternative would be the smallest compared to those provided in the other alternatives.

Cumulative Impacts

The cumulative impacts of climate change due to increasing anthropogenic CO2 emissions on marine resources under all alternatives would be long-term, major, and adverse. It is anticipated that these cumulative impacts from climate change would be the dominant factor influencing marine resources in the park rather than direct human activities.

In alternative A, the cumulative impacts of the existing regulations and current human activities (e.g. fishing, ranching in one of the watersheds, construction activities in the settlement, sewage and nutrients flowing out from the settlement) would have long-term, minor, adverse, and localized impacts on coral reef habitats and wildlife. It is anticipated that the impacts would stay the same over time given the current activity levels.

The potential establishment of a marine managed area under the action alternatives plus continuing protection of sensitive areas under alternative A would have an overall beneficial cumulative impact because of the recovery in fish populations within the area and the associated benefits to the reef and habitats.

In alternative B, the cumulative impacts of the existing regulations and human activities would be less than in alternative A and would have long-term and negligible impacts on coral reef habitats and wildlife.

Under alternative C, the cumulative impacts of the existing regulations and current human activities would be greater than in alternatives A and B given the expected increase in visitation levels, but still only have long-term, minor, adverse, and localized impacts on coral reef habitats and wildlife.

In alternative D, the cumulative impacts of the existing regulations and human activities would be greatest compared to the other alternatives given the highest visitation levels, and therefore have long-term, moderate, adverse, and localized impacts on coral reef habitats and wildlife. Any benefits with this alternative would be offset by the higher levels of fishing pressure, sewage, and pollution associated with an increase in visitation.

Conclusion

For all alternatives, beneficial impacts on the coastal reef habitats and wildlife include increasing our knowledge base for interpretation and education by monitoring the marine resources coupled with future research activities. Other benefits include exploring the establishment of a marine managed area, and setting aside areas with sensitive marine resources.

Beneficial impacts of alternative A on the coastal reef habitats and wildlife include monitoring of the marine resources, future research activities, and maintaining existing community regulations which protect the marine resources better than other areas around the state.

The primary long-term minor and adverse impact of this alternative is the lack of a joint enforcement agreement for concurrent jurisdiction with the State of Hawai‘i.

Alternatives B, C, and D would provide beneficial impacts on the marine resources by zoning sensitive marine resources for higher protection. The primary long-term, minor, and adverse impacts of this alternative would be on restricting visitor access and NPS operations by increasing enforcement activities. There would also be negligible impacts on visitor safety and native species during restoration and monitoring activities.

Alternative B would offer the best protection of the marine resources compared to the other alternatives by setting aside the largest areas of sensitive marine resources.

Alternative C would offer intermediate protection of the marine resources compared to the other alternatives.

Alternative D would offer the least amount of protection for the marine resources compared to the other alternatives due to greater visitor access to areas of the park.

Soils and Geologic Resources and Processes

Common to All Alternatives

The NPS in partnership with the United States Geological Survey (USGS) would continue monitoring geological resources and seismic activity.

Alternative A

No formal monitoring of soil erosion or landslides occurs currently within Kalaupapa NHP. Lack of a monitoring baseline for soil and geological processes would result in a failure to capture information about the direct consequences of soil disturbance by nonnative animals, management actions, and other natural or anthropogenic mediated perturbations on the landscape. An example of an ongoing landscape vegetation change with the ability to influence soil and geological processes are the loss of herbaceous understory due to herbivory by axis deer, and the encroachment of Christmas berry and Java plum into areas previously dominated by herbaceous vegetation. These processes contribute to soil erosion across the Kalaupapa peninsula, the pali, and in the rainforest.

Common to Alternatives B, C, and D

Kalaupapa NHP would mitigate for soil erosion and landslides, and take preventative measures to stabilize sensitive and erodible areas, as feasible. A prime area for such work would be the pali trail, where understanding the geological landscape and its processes would contribute to the safety of trail users. Enhanced feral animal control efforts would have an indirect benefit by allowing the recovery of a protective layer of vegetation over soil resources.

Cumulative Impacts

For all alternatives, the proposed pali trail bridge replacement and the construction of an alternative trail alignment for the pali trail would result in impacts on soil and the geologic process. However, these projects would follow all NPS policies and best management practices for trail construction to avoid adverse impacts. Therefore, these projects would have minor, short-term adverse impacts on the soil and geologic process in the area of construction. The implementation of the Kalaupapa fire management plan and any future unexploded ordnance removal efforts could result in impacts on soil and geologic processes. Again, these projects would follow NPS policies and best management practices so there would be negligible to minor long- and short-term adverse impacts.

Improvements in the control of feral animals and vegetation management would counteract the influence of projects imparting a disturbance to the landscape resulting in negligible to minor long- and short-term adverse impacts.

Conclusion

The lack of baseline information about soil and geological processes following alternative A would result in a poor understanding of soil and geological processes. Additionally, the lack of a formalized management plan for stabilizing soils and geologic resources throughout the park would result in a long-term minor adverse effect.

For alternatives B, C, and D, the initiation of a monitoring plan, mitigation, and stabilization efforts would be a benefit by contributing to the knowledge of geological and soil processes. Such knowledge and potential stabilization of key areas would protect resources and improve the safety of residents and visitors.

Biological Resources—Habitat, Wildlife, and Vegetation

Vegetation and wildlife are addressed together in this section, because an analysis of potential impacts on wildlife typically involves a discussion of wildlife habitat, which consists of various vegetation and aquatic communities found within Kalaupapa NHP.

Common to All Alternatives

Kalaupapa NHP would continue to restore native vegetation in demonstration restoration areas by removing nonnative species and planting native species. In the native forests within the park, the NPS would continue active management programs to reduce destruction of native vegetation by removing feral ungulates. The NPS would continue preservation efforts of significant vegetation areas such as the coastal spray vegetation along the east coast of the Kalaupapa peninsula and higher elevation rainforest. The NPS would also continue nursery activities for rare and threatened native plant propagation.

A focus on reduction and management of nonnative wildlife species within the park would continue. This includes reducing feral ungulates by fencing and hunting in selected management units of the park, maintaining the existing level

of monitoring of feral ungulate removal, and managing feral animals within the settlement such as mongoose.

While marine birds are common along the coast, few nesting sites are available because of the presence of feral cats, rats, and mongoose. Few native terrestrial birds exist at lower elevations within the zone inhabited by avian malaria-transmitting mosquitoes. Native birds in Kalaupapa NHP rainforests are further threatened by the recent introduction to Hawai‘i of a new mosquito species able to live and transmit avian malaria at higher elevations.

The current program for cat management at Kalaupapa is comprised of one to two annual visits by volunteer veterinarians to spay and neuter cats and provide basic care to animals owned by Kalaupapa residents. Efforts are considered to benefit the cat population by minor reduction in reproductive capacity and improvement in cat herd health.

No efforts are currently underway to manage mongoose, rats or any other rodents outside of existing buildings.

Similarly, in the aquatic realm, Kalaupapa NHP would continue to research and monitor resources in the oceans and streams to identify threats and stressors that impact fauna and flora. Management actions would include partnerships with agencies such as the National Oceanic and Atmospheric Administration



Left: Native plant nursery, providing plants for restoration efforts. Right: working on feral ungulate exclusion fencing. NPS photos.

(NOAA) and USGS to protect endangered species and understand ecosystem processes.

Common to Alternatives B, C, and D

In addition to the management actions identified under the no-action alternative, natural resource managers would also work with the cultural resources program to expand the nursery to cultivate ethnographically important ornamental, food, and medicinal plants and manage remaining field populations of legacy plants by outplanting and maintaining appropriate culturally important areas.

The expansion of the Kalaupapa program to cultivate and maintain legacy/heritage trees would benefit a small heritage native tree component on the peninsula.

Kalaupapa NHP would continue to manage nonnative ungulates under alternative C, and expand animal control to reduce the number of small mammals within the settlement and key ecological areas (for example, outplanting sites). This would allow vegetation recovery from herbivory attributed to feral ungulates. The removal of small mammals would improve native plant reestablishment from seeds and increase bird fledgling survival in key areas. Establishing a monitoring program to track the status of wildlife (native and nonnative) would improve understanding of the influence of nonnative wildlife management



Special Status Species

The following table is a cross-walk between the NEPA and Endangered Species Act Section 7 definitions of intensity of effect.

Table 5.1: Definitions of intensity of effect on special status species

NEPA	ESA Section 7	
Negligible	No Effect	The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action will not affect the listed species or its designated critical habitat.
Minor Moderate	May Affect, Not Likely to Adversely Affect	The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur.
Major	May Affect, Likely to Adversely Affect	The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial.

Common to All Alternatives

In general, many of the impacts on vegetation and wildlife previously described in the habitat sections would apply to special status species. For example,

on native plants and animals, leading more effective project implementation in the future.

Alternative C

Alternative C is similar to alternatives B and D, but would incorporate traditional management practices at demonstration areas and use volunteers to participate with ongoing restoration efforts.

Cumulative Impacts

Cumulative impacts are the same for all alternatives. Vegetation and wildlife in Kalaupapa have been cumulatively and adversely affected from many different types of human activity in the past and will continue to be influenced by projects through the foreseeable future. Minor to moderate long-term adverse cumulative effects would be associated with ongoing operations and management of existing facilities, continued invasion from invasive nonnative plants, potential fire suppression activities, and the influence of climate change.

Conclusion

For actions common to all alternatives, the impact of the current feral animal management program (fencing and feral deer, pig, goat removal) is likely the single most effective action benefiting the rainforest, pali, and management units located on the east coast of the Kalaupapa peninsula and all of their native inhabitants. The programs would continue to benefit the terrestrial resources (individual plants, birds, and other wildlife as well as their habitat) within Kalaupapa NHP.

In general, the actions and guidance common to alternatives B, C, and D would be a benefit to the management of stable and healthy natural resources. Alternative B would provide an additional benefit to natural resources by aiding the maintenance and outplanting of a small component of heritage native trees part of the ethnographic landscape. The use of volunteers and service groups would enhance the scope and scale of restoration efforts under alternative C. Alternative D would provide a benefit (relative to the no-action alternative) to natural resources by aiding the maintenance and outplanting of a small component of heritage native trees forming a part of the ethnographic landscape.

increasing visitor access and opportunities would result in changes that would have adverse impacts on listed species and their habitats. Likewise, vegetation management and restoration activities would result in beneficial impacts on listed species and their habitats. Keeping this in mind, the analysis provided below generalizes about the effects of management priorities and, where possible, focuses on the impacts that specific actions included in the alternatives may have on listed species and their habitats.

Feral animal control aids the maintenance of habitat suitable for native birds remaining at higher elevations, and water quality for threatened damselflies at lower elevations. Partners (The Nature Conservancy and DLNR) play an important role in feral animal control at higher elevations (pali and Pu‘u Ali‘i rainforest). NPS staff are responsible for feral animal control on the peninsula in lower elevation habitats (e.g. coastal spray zone and crater). It is not known how current management actions affect the Hawaiian hoary bat.

Climate change will significantly impact special status species by increasing storm frequency and severity, increasing sea level leading to loss of coastal habitat, declining precipitation, and increasing temperature affecting all special status species, especially those terrestrial species restricted to high elevation areas that are rapidly dwindling. Therefore, park management actions and mitigation strategies will focus on impacts on these high profile special status species.

Listed below are the special status species currently in the park and common to all alternatives.

Green Sea Turtle (*Chelonia mydas*)—Beneficial impacts would include monitoring of sea turtle nests, law enforcement patrols to ensure protection at sea from human harassment and predation, reduction in runoff and associated pollutants to improve the marine habitat, and reducing feral animal populations that prey on sea turtle nests. All of these activities should improve and protect breeding and foraging habitat by improving conditions within the marine habitat preferred by the green sea turtle. Controlling and managing visitor use

would also reduce impacts on sea turtles such as harassment in the water. Some adverse impacts would continue, however, such as long-term park operations and short-term project specific construction impacts. These may involve “take” associated with harassment and accidental death within construction areas or impacts of existing vessel traffic. The National Park Service would continue to monitor sea turtle nesting sites and survey potential habitat. The primary threat to the sea turtle would continue to be habitat degradation and direct harassment—an adverse impact associated with park operations and visitor use. There has not been any designated critical habitat at Kalaupapa. Collectively, impacts on the green sea turtle resulting from NPS actions that are part of the no-action alternative (the continuation of current management and trends)

would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, likely to adversely affect*” for project specific actions in the short term, and “*may affect, not likely to adversely affect*” for land use and park management over the long-term. Consultation for specific projects would occur as necessary and may result in cessation or a temporary pausing of the project.

Hawaiian Monk Seal (*Monachus schauinslandi*)—Beneficial impacts would include shoreline monitoring of monk seals, population studies in partnership with NOAA, law enforcement patrols to ensure protection along the beach from human harassment,

reduction in runoff and associated pollutants to improve the marine habitat, and reducing feral animal populations that might influence monk seal breeding. All of these activities should improve and protect breeding and foraging habitat by improving conditions within the marine habitat preferred by the monk seal. Controlling and managing visitor use would also reduce impacts on sea turtles such as harassment on the beach and in the water. Some adverse impacts would continue, however, such as long-term park operations and short-term project specific construction impacts. These may involve “take” associated with harassment within construction areas or impacts of existing vessel traffic. The National Park Service would continue to monitor monk seal pupping sites and



Hawaiian monk seal. NPS photo.

survey potential habitat. The primary threat to the monk seal would continue to be habitat degradation and direct harassment—an adverse impact associated with park operations and visitor use. Kalaupapa has been designated critical habitat which ensures section 7 consultation for any governmental projects along the shoreline. Collectively, impacts on the monk seal resulting from NPS actions that are part of the no-action alternative (the continuation of current management and trends) would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, likely to adversely affect*” for project specific actions in the short term, and “*may affect, not likely to adversely affect*” for land use and park management over the long term. Consultation for specific projects would occur as necessary and may result in cessation or a temporary pausing of the project.

Humpback Whale (*Megaptera novaeangliae*)—Beneficial impacts would include law enforcement patrols to ensure protection at sea from human harassment and reduction in runoff and associated pollutants to improve the marine habitat. These activities should improve and protect breeding habitat by improving conditions within the marine habitat preferred by the humpback whale. Some adverse impacts would continue, however, such as long-term park operations and short-term project specific construction impacts. These may involve “take” associated with harassment within construction areas or impacts of existing vessel traffic. The National Park Service would continue to monitor and survey potential habitat. The primary threat to the humpback whale would continue to be habitat degradation and direct harassment—an adverse impact associated with park operations and visitor use. Collectively, impacts on the humpback whale resulting from NPS actions that are part of the no-action alternative (the continuation of current management and trends) would be long-term, beneficial, negligible, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, not likely to adversely affect*” for project specific actions in the short term, and “*may affect, not likely to adversely affect*” for land use and park management over the long term. Consultation for specific projects would occur as necessary and may result in cessation or a temporary pausing of the project.

High-elevation terrestrial birds (*Myadestes lanaiensis*, *Paroreomyza flammea*, *Vestiaria coccinea*) are likely to continue to decline through the long term as a consequence of avian malaria.

High-elevation rainforest/cliff-dwelling terrestrial plants (*Bidens wiebkei*, *Clermontia oblongifolia* ssp. *brevipes*, *Cyanea dunbarii*, *Cyanea procera*, *Hedyotis mannii*, *Hesperomannia arborescens*, *Hibiscus arnottianus* ssp. *immaculatus*, *Lysimachia maxima*, *Melicope reflexa*, *Phyllostegia hispida*, *Phyllostegia mannii*, *Plantago princes* var. *laxiflora*, *Platanthera holochila*, *Ranunculus mauianensis*, *Stenogyne bifida*, and *Zanthoxylum hawaiiense*) are likely to stabilize in the short term and improve in abundance in the longer term—the consequence of the recent completion of fencing projects aimed at improving feral animal (pigs and goats) control. The removal of feral animals from the fenced management units is ongoing. Future augmentation of rare plants within fenced areas would stabilize high elevation rare plants.

Makou (*Peucedanum sandwichense*) present on islets east of the peninsula are likely to stabilize in the short term and improve in abundance in the longer term—the consequence of rat control.

Marine birds (*Pterodroma sandwichensis*, *Puffinus auricularis newelli*) are unlikely to be influenced by management alternatives in the shorter term. In the longer term, the control of feral animals may provide suitable nesting sites along the coast and within the Crater Management Unit, though no actions are likely to occur in the foreseeable future.

The **Hawaiian hoary bat** (*Lasiurus cinereus semotus*) is likely to remain stable in the short term, but spread of disease may result in future declines.

Lower-elevation plants—Many have recently received increased protection as a result of successful fencing and deer eradication projects. This is particularly so for low elevation coastal plants along the eastern seaboard of the Kalaupapa peninsula (*Tetramolopium rockii*). Other plants within smaller outplanting areas have been stabilized in the short term, and are likely to increase in the longer term pending project funding and implementation (*Canavalia molokaiensis*, *Peucedanum sandwichense*, *Scaevola coriacea*, and *Sesbania tomentosa*). Other plants have recently been lost from Kalaupapa NHP (*Centaurium sebaeoides*) due to habitat changes or are expected to show continued declines because of extrinsic factors (*Brighamia rockii*).

Table 5.2: Determination of Impacts to Special Status Species

Species	Status	Endangered Species Act Determination
Terrestrial and Marine Wildlife, Birds, and Insects		
green sea turtle (<i>Chelonia mydas</i>)	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
humpback whale (<i>Megaptera novaeangliae</i>)	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Hawaiian hoary bat <i>Lasiurus cinereus semotus</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Blackburn's sphinx moth, <i>Manduca blackburni</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Pacific Hawaiian damselfly, <i>Megalagrion pacificum</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Molokai thrush or oloma'o <i>Myadestes lanaiensis</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Molokai creeper or kākāwahie <i>Paroreomyza flammea</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Hawaiian petrel <i>Pterodroma sandwichensis</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Newell's shearwater <i>Puffinus auricularis newelli</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'i'iwi <i>Vestiaria coccinea</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Terrestrial Plants		
ko'oko'olau <i>Bidens wiebkei</i> ,	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
pua'ala <i>Brighamia rockii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'āwikiwiki <i>Canavalia Molokaiensis</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term

Species	Status	Endangered Species Act Determination
lavaslope centaury or 'āwiwi <i>Centaurium sebaeoides</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'oha wai <i>Clermontia oblongifolia ssp. brevipes</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
haha <i>Cyanea dunbarii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
haha <i>Cyanea procera</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
pilo <i>Hedyotis mannii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Hesperomannia arborescens</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
hibiscus <i>Hibiscus arnottianus ssp. immaculatus</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Lysimachia maxima</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
alani <i>Melicope reflexa</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Carter's panicgrass, <i>Panicum fauriei</i> var. <i>carteri</i> ,	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
makou <i>Peucedanum sandwicense</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Phyllostegia hispida</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Phyllostegia mannii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
kuahiwi laukahi <i>Plantago princes</i> var. <i>laxiflora</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Platanthera holochila</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term

Species	Status	Endangered Species Act Determination
makou <i>Ranunculus mauiensis</i>	Candidate	<i>“may affect, likely to adversely affect”</i> for project specific actions in the short term, and <i>“may affect, not likely to adversely affect”</i> for land use and park management over the long term
dwarf naupaka <i>Scaevola coriacea</i>	Federal endangered	<i>“may affect, likely to adversely affect”</i> for project specific actions in the short term, and <i>“may affect, not likely to adversely affect”</i> for land use and park management over the long term
‘ōhai <i>Sesbania tomentosa</i>	Federal endangered	<i>“may affect, likely to adversely affect”</i> for project specific actions in the short term, and <i>“may affect, not likely to adversely affect”</i> for land use and park management over the long term
----- <i>Stenogyne bifida</i>	Federal endangered	<i>“may affect, likely to adversely affect”</i> for project specific actions in the short term, and <i>“may affect, not likely to adversely affect”</i> for land use and park management over the long term
----- <i>Tetramolopium rockii</i> var. <i>rockii</i>	Federal threatened	<i>“may affect, likely to adversely affect”</i> for project specific actions in the short term, and <i>“may affect, not likely to adversely affect”</i> for land use and park management over the long term
a’e <i>Zanthoxylum hawaiiense</i>	Federal endangered	<i>“may affect, likely to adversely affect”</i> for project specific actions in the short term, and <i>“may affect, not likely to adversely affect”</i> for land use and park management over the long term

Alternative A

Under alternative A, the park would continue to monitor the distribution, abundance, and habitat use of selected special status species such as the Hawaiian monk seal and selected plant species. The park would also continue its program of invasive plant and feral animal eradication to protect remaining areas with rare plants (coastal spray zone, crater, pali, and Pu‘u Ali‘i rainforest) and using fencing to create safe areas for cultivated plants.

Staff at the park currently collect propagules (seeds and cuttings) from plants within the park, or receive propagules from past collections maintained at botanical gardens. These plants are grown out in the nursery and then reintroduced to the field in the form of seeds, seedlings, or more mature potted plants. Volunteers are commonly used for nursery maintenance, plant propagation on the Kalaupapa peninsula.

No management actions are currently ongoing to monitor threatened green sea turtles or endangered humpback whales, facilitate marine bird nesting success along the park coastline, or document the Hawaiian hoary bat. This alternative would have the fewest management activities targeting special status species.

Common to Alternatives B, C, and D

These alternatives would:

- Create a variety of management zones that would assist in the protection of special status species.
- Enhance monitoring efforts to assess more species than in alternative A.
- Enhance partnerships to enable a greater information exchange with federal and state agencies as well as local conservation groups.
- Management actions on special status species would be greater in the Integrated Resource Management zone than in other zones due to accessibility for personnel and distribution patterns of these species.
- Kalaupapa NHP would continue its program of invasive plant and feral animal eradication to protect remaining areas with rare plants (coastal spray zone, crater, pali, and Pu‘u Ali‘i rainforest) and using fencing to create safe areas for cultivated plants.

- Impacts on green sea turtles (*Chelonia mydas*) and their habitat would be the same as under the no-action alternative with the exception of increased benefits due to the larger sensitive zones and enhanced partnerships to protect the species. Impacts on the green sea turtle resulting from NPS actions would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be *“may affect, not likely to adversely affect.”*
- Impacts on Hawaiian monk seals (*Monachus schauinslandi*) and their habitat would be the same as under the no-action alternative with the exception of increased benefits due to the larger sensitive zones and enhanced partnerships to protect the species. Impacts on the monk seal resulting from NPS actions would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be *“may affect, not likely to adversely affect.”*
- Impacts on Humpback Whale (*Megaptera novaeangliae*) and their habitat would be the same as under the no-action alternative with the exception of increased benefits due to the enhanced partnerships to protect the species. Impacts on the humpback whale resulting from NPS actions would be long-term, beneficial, negligible, and localized. The determination of effect under Section 7 of the Endangered Species Act would be *“may affect, not likely to adversely affect.”*

Alternative B

This alternative would protect the largest area for special status species by zoning 62% of the park as Integrated Resource Management and 34% of the park as Wao Akua.

Impacts on special status species and their habitats would be the same as under the no-action alternative with the exception of increased benefits due to lower visitation levels. Most of the visitation would take place off site thereby reducing direct pressure on the special status species and indirect pressure on their habitats.

Alternative C

This alternative would protect an intermediate area for special status species compared to the other alternatives by zoning 49% of the park as Integrated Resource Management and 46% of the park as Wao Akua.

Impacts on special status species and their habitats would be the same as under the no-action alternative with the exception of increased benefits due to the restoration activities using service groups and augmented visitor opportunities. Restoration activities include removal of nonnative shoreline vegetation in nesting and nursing habitats and outplanting of native vegetation in watersheds influencing the habitats of these special status species. Visitor opportunities and educational experiences would be increased through the service groups and higher visitation levels.

The adverse impacts associated with this alternative would be a reduction in sensitive areas and direct interactions with special status species due to the alternative zonation and increased visitor use.

Alternative D

This alternative would protect the smallest area for special status species compared to the other alternatives by zoning 60% of the park as Integrated Resource Management and 34% of the park as Wao Akua.

Impacts on special status species and their habitats would be the same as under the no-action alternative with the exception of increased benefits due to the restoration activities through demonstration projects and augmented visitor opportunities. Restoration activities include removal of nonnative shoreline vegetation in nesting and nursing habitats and outplanting of native vegetation in watersheds influencing the habitats of these special status species. Visitor opportunities and educational experiences would be increased due to the highest visitation levels.

The adverse impacts associated with this alternative would be a reduction in sensitive areas and direct interactions with special status species due to the alternative zonation and the highest levels of visitor use.

Cumulative Impacts

While management actions directly associated alternative A are a benefit to special status species, other stressors such as invasive species and climate change defined by precipitation, and temperature regime as well as ocean conditions would continue to imperil special status species resulting in short- and long-term minor to moderate adverse impacts on special status species. It is anticipated that cumulative impacts from climate change would be most det-

rimental to special status species with this alternative given the lowest level of management activities compared to other alternatives. Therefore, cumulative impacts on special status species would be long-term, moderate, and adverse.

Under alternatives B, C, and D, the potential establishment of a marine managed area as well as protecting sensitive areas would have an overall beneficial cumulative impact because of the recovery in fish populations within the area and the associated benefits to visitation. It is anticipated that a joint enforcement agreement with the State of Hawai‘i would have a long-term, beneficial cumulative impact on the marine habitats and wildlife.

Conclusion

For all alternatives, beneficial impacts on the coastal reef habitats and wildlife include increasing our knowledge base for interpretation and education by monitoring the marine resources coupled with future research activities. Management activities would benefit special status plant and wildlife species in management areas where feral animals are removed. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.

For alternatives B, C, and D, management would provide beneficial impacts on the marine resources by zoning sensitive marine resources for higher protection. The primary long-term, moderate, and adverse impacts of these three alternatives would be from changes in climate such as increasing storm frequency and severity, increasing sea level leading to loss of coastal habitat, declining precipitation, and increasing temperature affecting all special status species. A secondary long-term minor, adverse impact would be on restricting visitor access and NPS operations by increasing enforcement activities. There would also be negligible impacts on visitor safety and native species during restoration and monitoring activities.

Management under alternative A would benefit terrestrial special status plant or wildlife species in management areas where monitoring occurs and where feral animals are removed. This would be a subset of the larger list above. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts to all special status species.

Alternative B is unlikely to have influence on any terrestrial special status plant or wildlife species beyond the no-action alternative except in areas zoned as sensitive resources. Management would benefit special status plant and wildlife species in management areas where feral animals are removed. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.

The stewardship influence of alternative C would be a great benefit to terrestrial special status plant or wildlife species within Kalaupapa NHP, particularly those plants on the Kalaupapa peninsula. Any adverse impacts from increased visitation would be long-term, minor, and localized. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.

The park would see increased visitation under alternative D, but little additional labor in the form of volunteer service relative to alternative A. Alternative D would thus not influence terrestrial special status plant or wildlife species differently than the no-action alternative A. Despite beneficial management actions, factors outside of NPS control (future invasive species and Climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.



Brighamia rockii (federally endangered plant) on Huelo islet. NPS photo.

Impacts on Fishing, Hunting, and Gathering

Common to All Alternatives

NPS regulations would continue to apply to the marine area of the park and on land to the extent consistent with the lease with DHHL and the cooperative management agreements.

In the short term, existing Department of Health (DOH) patient and resident regulations about fishing and gathering below the 500 foot elevation would continue until the DOH leaves Kalaupapa. Hunting above the 500 foot elevation (managed by the Department of Land and Natural Resources (DLNR), Department of Fish and Wildlife would be governed by State of Hawai‘i hunting rules and regulations. Hunting of axis deer, goats, and pigs removes these nonnative ungulates from trampling native vegetation, impacting cultural resources including archeological sites, and altering the hydrology and sedimentation processes in the watersheds.

Currently, most of the fishing, hunting (deer and pigs), and gathering (plant collection for subsistence, religious, cultural, or medicinal purposes) within Kalaupapa NHP pursuant to DOH regulations (particularly the peninsula) is by non-patient residents of Kalaupapa.

Alternative A

Under alternative A, the regulations listed above would continue into the long-term future, unless unpredicted changes occurred in the relative abundance of natural resources. Of the various resources found in the park, plant resources appear to have been impacted the most over the past few decades. Wild animals (deer and pigs) and the proliferation of invasive shrubs and trees (Java plum, Christmas berry, lantana, date palm) have already had a negative impact on the landscape prior to the NPS coming to Kalaupapa. In recent decades, traditional Hawaiian plants, food and medicinal plants have declined considerably due to feral animals and competition from invasive plants for water, nutrients, and light. The remaining plant resources are in poor condition and unlikely to rebound without intervention, including the removal of alien species and reestablishment of propagated plants. This decline would continue across the peninsula without active management.

Common to Alternatives B, C, and D

These alternatives would:

- In the long term, work cooperatively with the State of Hawai‘i and partners to manage marine and terrestrial resources. If the State of Hawai‘i wishes to establish new regulations for hunting, the NPS would cooperate. The current DOH guidelines established by the patients will be modified once the patient community is gone to ensure the long-term preservation of resources and also control feral animal damage to desired plant resources that are important for cultural practices, food, and subsistence.
- Enhance monitoring efforts to evaluate impacts of resource extraction and the efficacy of management actions.

Alternative B

In alternative B, the focus would be on offsite visitation and maximum area set aside for protection. This alternative would emphasize management actions augmenting natural processes to recover and build resilience in ecosystems. Extractive activities of native wildlife such as fishing would diminish, but restoration efforts would also diminish due to fewer volunteer stewardship groups and general visitors. The fewest onsite educational opportunities for visitors would occur in this alternative.

Alternative C

In alternative C, an emphasis on volunteer and service groups would add a partnership with community and educational groups to aid with implementation of enhanced marine and terrestrial vegetation management—propagation, outplanting, monitoring, and maintenance of the vegetative landscape. The benefit of involving community service groups in stewardship of the natural resources is a win-win for both the park and its resources and for groups desiring a community service component.

Alternative D

Alternative D emphasizes the individual visitor experience and learning through guided tours and self-guided exploration. Management of resource protection, desired plant propagation and outplanting would still occur but on a smaller scale than in alternative C which focuses on group stewardship of the resources.

Cumulative Impacts

For all alternatives in the short term, cumulative impacts would be negligible on the fish populations, but minor and adverse on the hunting and gathering of resources. Cumulative impacts of gathering on natural resources would have long-term, negligible impacts on these resources due to low activity levels in all of the alternatives.

In alternative A, the cumulative impacts of current fishing activities on fish resources would have long-term, minor, adverse, and localized impacts on these resources. Targeting large, apex predators and ecologically important herbivorous fishes would continue to negatively alter ecosystem services in the nearshore marine environment. Cumulative impacts of gathering on natural resources would have long-term, negligible impacts on these resources due to low activity levels at present. As allowed by DOH and DLNR regulations, current hunting activities would have long-term and beneficial cumulative impacts on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.

For alternatives B, C, and D, the potential establishment of a marine managed area as well as protecting sensitive areas would have an overall beneficial cumu-

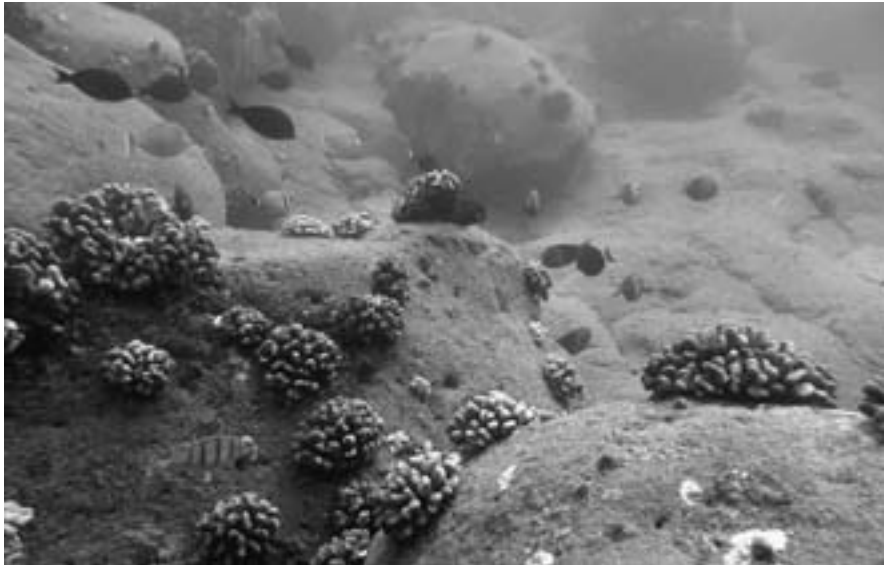


Goats in Pu'u Ali'i, 2003. NPS photo.

lative impact because of the recovery in fish populations within the area and the associated benefits to visitation.

Cumulative impacts of current fishing activities in alternative B would continue to have long-term, minor, adverse, and localized impacts on these resources. Although the potential establishment of a marine managed area as well as protecting the largest area of sensitive resources would have an overall beneficial cumulative impact because of the recovery in fish populations within the area and the associated benefits to visitation. Hunting activities in alternative B would have beneficial cumulative impacts on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.

Under alternative C, the cumulative impacts of the existing regulations and fishing activities would be greater than in alternatives A and B given the expected increase in visitation levels, but still only have long-term, minor, adverse, and localized impacts on fishery resources. Hunting activities coupled with stewardship restoration activities in alternative C would have the greatest beneficial cumulative impact compared to other alternatives on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.



Marine fish in boulder habitat. NPS photo.

In alternative D, the cumulative impacts of the existing regulations and fishing activities would be greatest compared to the other alternatives given the highest visitation levels, and therefore have long-term, moderate, adverse, and localized impacts on fishery resources. It is anticipated that a joint enforcement agreement with the State of Hawai'i would also have a long-term, beneficial cumulative impact on the fishery resources. Hunting activities would have a beneficial cumulative impact similar to alternatives A and B on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.

Conclusion

For all alternatives the continuation of the patient resident rules regarding fishing and the management of hunting by DLNR is a benefit to the continued preservation and management of natural resources. The primary long-term, moderate, and adverse impacts of these alternatives would be from changes in climate such as increasing storm frequency and severity, increasing sea level leading to loss of coastal habitat, declining precipitation, and increasing temperature affecting all resources currently being collected.

Alternative A would result in a negligible adverse impact to hunting and a minor impact on fishing resources due to normal subsistence activities and major long-term adverse effects on vegetative resources due to the presence of predominantly invasive species across the landscape. Native Hawaiian plants, food, and medicinal plants are unlikely to rebound without a program to propagate, outplant, and maintain desired plants.

Alternatives B, C, and D would have a beneficial and a major adverse effect on plant resources and gathering of plants. New regulations and networking with the State of Hawai'i and partners would benefit fish and plant resources by providing improved management and an updated plan to better manage resources and access to these resources for cultural practitioners. However, there would also be a major long-term adverse effect due to the existing prevalence of invasive plants and competition with traditional Hawaiian plants, food, and medicinal plants for water, nutrients, and light. Without an active program to remove alien species, native plants are unlikely to rebound on their own without help—propagation, outplanting, monitoring and maintenance of the vegetative landscape.

Alternative B would result in a negligible adverse effect to hunting and fishing resources due to normal subsistence activities and low levels of visitation. At the same time, new regulations and innovative management of marine resources would be beneficial to protect these resources to balance the negligible adverse effects and any potential future adverse effects such as over fishing. Consequently, this alternative would offer the best management tools and the lowest fishing pressure on marine resources compared to the other alternatives. Terrestrially, however, this alternative would have the lowest level of plant management compared to the other alternatives since many of the management activities are supported by service groups and general visitors that would not be as prevalent in this alternative.

Alternative C would result in a negligible adverse effect to hunting and a minor impact on fishing resources due to normal subsistence activities and moderate levels of visitation. Consequently, this alternative would offer intermediate protection of the marine resources compared to the other alternatives due to moderate fishing pressure and the lower level of management activities. Terrestrially, the emphasis of volunteer and community service groups in this alternative would improve the existing status of traditional plant resources through implementation of improved management methods, outplanting, and propagation.

Alternative D would result in a negligible adverse effect to hunting and a minor impact on fishing resources due to normal subsistence activities and the highest visitation levels. Consequently, this alternative would offer the lowest level of protection for the marine resources compared to the other alternatives due to moderate fishing pressure and the lowest level of management activities. Management and protection of plant resources, propagation and outplanting would still occur but on a smaller scale than in alternative C which focuses on active group stewardship of these resources. Without an active program to remove alien species, native plants are unlikely to rebound on their own without help—propagation, outplanting, monitoring, and maintenance of the vegetative landscape.

Impacts on Wild and Scenic Rivers

Common to All Alternatives

Waikolu Stream is listed within the National Rivers Index (NRI) as eligible for Wild and Scenic River designation. Previous studies indicated that Waikolu would be eligible for listing due to its Outstandingly Remarkable Values (ORVs) of Scenery, Fish, and Wildlife.

Large feral ungulate exclosures and wing fences are constructed in the Waikolu stream watershed to protect the rainforest through the prevention of soil surface disturbance and erosion and the transfer of sediments along the Waikolu watercourse thus improving water quality. There are no proposed actions in any of the alternatives that would change the current status and management of Waikolu Stream.

The NPS recommends updating the National Rivers Index for Waikolu Stream by adding Culture and History to the list of contributing of the stream and, based on the updated ORVs, changing the classification to *Scenic*. A suitability analysis for Waikolu Stream, as define in the Wild and Scenic Rivers Act, would be completed at a later date.



View of Waikolu Valley from the Waikolu overlook. NPS photo.

Cumulative Impacts

Upper Waikolu Stream has been diverted for human use by the Molokai Irrigation System since November 1960. While there are no plans to change water diversion at this time, there could be future changes to the stream flow by the Molokai Irrigation System. These changes could adversely impact water quality, the stream characteristics, and flow-dependent ORVs. Since NPS does not have the ability to use Section 7 or 13 of the WSRA to prevent such withdrawals, it is possible that the Waikolu’s eligibility for designation could change as result of diminished water flow during the life of the GMP. In addition, the continued invasion by nonnative plants would result in the further reduction of native plant abundance.

Conclusion

The continued management of Waikolu Stream to reduce the presence of feral animals and improve the soil stability and water quality would result in a benefit to the Waikolu Stream. The updated National Rivers Index Outstandingly Remarkable Values and classification of Waikolu Stream would benefit the long-term preservation of the stream.

Impacts on Scenic Resources

Common to All Alternatives

Current management efforts for the preservation of scenic resources, such as removal of nonnative vegetation to maintain significant and historic viewsheds would continue. Of all projects, the fire management plan (common to all alternatives) would have the greatest influence on scenic resources within the Kalaupapa NHP. Fuel reduction within the Wilderness Urban Interface (including Kalaupapa, Kalawao, and roadways) serves also to maintain historic viewsapes. Volunteers would continue to assist with fuel reduction and landscape maintenance activities within Kalaupapa and Kalawao. The program of maintaining and preserving and rehabilitating historic buildings and historic landscapes in Kalaupapa, Kalawao, and in the vicinity of the lighthouse would contribute to the preservation of scenic resources.

Common to Alternatives B, C, and D

The goal to provide visitors with excellent scenic views that encourage appreciation and enjoyment of Kalaupapa and the resources would be established. In the event the NPS were to construct individual alternative energy units, such as photovoltaic panels and wind turbines; or centralized generation facilities, such as solar or wind “farms,” there could be adverse impacts on scenic resources. Planning that includes careful placement and screening would mitigate the adverse effects.

Alternative C

Alternative C would include the same actions as alternatives B and D, but would incorporate service groups for the removal of nonnative vegetation to maintain significant viewsheds.

Alternative D

Same as alternative B

Cumulative Impacts

For all alternatives, the cumulative impacts of the fire management plan, volunteer efforts, and the preservation and rehabilitation of historic buildings and

historic landscapes provides a benefit to the maintenance of scenic resources within Kalaupapa, Kalawao, and along the roadways across the peninsula.

Conclusion

Under all of the alternatives, the scenic values at Kalaupapa would benefit. There is a greater benefit under alternative C because of the use of volunteer labor to provide maintenance to the continued preservation of the viewsheds.



St. Francis Catholic Church. NPS photo.

Impacts on Interpretation and Education

Common to All Alternatives

In the near term, the park’s website, exhibits at the bookstore, waysides, and park brochure would be maintained as ways to share the park’s history with the public and to orient visitors to Kalaupapa NHP. In addition, the park would begin to develop a limited interpretation and education division. However, there would not be any developed curriculum-based educational programs and materials. The NPS would also develop a self-guided walking tour of the Kalau-papa Settlement. These interpretive media would provide visitors with basic information about Kalaupapa’s history and resources.

Most education and interpretation would continue to be provided by non-National Park Service entities. Residents would be engaged to tell the story of Kalaupapa. The limited number of visitors allowed to enter Kalaupapa would gain an understanding of Kalaupapa’s history through the patient-owned Damien Tours and could have interactions with the patient residents. The current visitor opportunities at Kalaupapa may not illustrate and convey the breadth of significant resources at Kalaupapa, including the native Hawaiian archeological resources, the Molokai Light Station, and the wide variety of natural resources. There would continue to be a lack of formal interpretive, educational, and outreach programs. As a result, there would continue to be limited learned opportunities for the public and a lack of depth and breadth in the information provided.

Alternative A

Same as Common to All Alternatives

Alternative B

An interpretation and education division would be established at the park which would have a beneficial impact on visitor experience. The educational efforts, including general public education, would be focused at offsite loca-tions (outside of Kalaupapa) and through extensive outreach efforts to provide opportunities for learning about Kalaupapa without actually visiting Kalau-papa. A wide range of new interpretive and educational programs targeted at offsite locations and more onsite programming would raise awareness about

Kalaupapa’s existence and history for youth and the general public and have a beneficial impact.

Under this alternative, a long-range interpretive plan would be developed and subsequent content for educational and interpretive programs would focus on the interpretive themes in this GMP. Interpretive materials, exhibits, and diverse media, such as video, publications, and websites would be used to share information. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen’s disease community at Kalaupapa. These improved and new methods for interpreting Kalaupapa’s history to new audiences would greatly increase the quality of visitor experience at Kalaupapa and at offsite locations.

The development of curriculum-based educational programs and materi-als such as lesson plans and traveling educational exhibits about Kalaupapa would have beneficial impacts to visitor experience. NPS support for volunteer interpreters, including patients, ‘ohana, and kama ‘āina, would allow visitors to learn from people directly associated with Kalaupapa’s living and historical communities. Alternative B would provide a range of outreach materials and programs targeted on Molokai, Hawai‘i, the U.S., and at related international sites, such as web-based materials and multimedia connection with similar sites throughout the world.

Alternative C

An interpretation and education division would be established at the park which would have a major beneficial impact on visitor experience. A wide range of new interpretive and educational programs onsite and at offsite locations would significantly enhance the quality, depth of understanding, and breadth of knowledge about Kalaupapa on the island of Molokai, in Hawai‘i, and through-out the world. New and greater opportunities to visit the site and engage in hands-on learning activities would dramatically and positively change the nature of interpretation and education about Kalaupapa. These new programs would raise awareness about Kalaupapa’s existence and history for youth and the general public and have a beneficial impact.

Alternative C promotes hands-on stewardship programs that serve as interpre-tive programs and contribute to the preservation, rehabilitation, and restoration of Kalaupapa’s resources. The hands-on service and learning projects would

assist the park staff in improving resource conditions, such as historic buildings and cultural landscapes associated with the Hansen’s Disease settlement period (1866–1969); perpetuate traditional patient and native Hawaiian traditions at Kalaupapa, such as the taro, lo‘i, and sweet potato agriculture; nonnative plant removal; rare and endangered plant propagation and restoration; inventory and monitoring projects; and feral animal control and habitat restoration to benefit native wildlife. These activities and opportunities would have a beneficial impact on visitor experiences and park resources.

Under this alternative, demonstrations for visitors and groups about resource research and preservation such as archeological excavations, historic building rehabilitation, rare and endangered plant propagation and restoration, marine monitoring, and feral animal control would be demonstrated. Additionally, traditional facility-based interpretive programs and opportunities for people to interact with rangers and park partners would be offered. These types of activities do not currently exist, and the creation of them would greatly enhance visitor learning about the history and types of resources at Kalaupapa.

Under this alternative, a long-range interpretive plan would be developed and subsequent content for educational and interpretive programs would focus on the interpretive themes in this GMP. Interpretive materials, exhibits, and diverse media, such as video, publications, and websites would be used to share information. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen’s disease community at Kalaupapa. These improved and new methods for interpreting Kalaupapa’s history to new audiences would greatly increase the quality of visitor experience at Kalaupapa and at offsite locations.

The development of curriculum-based educational programs and materi-als such as lesson plans and traveling educational exhibits about Kalaupapa would have beneficial impacts to visitor experience. NPS support for volunteer interpreters, including patients, ‘ohana, and kama ‘āina, would allow visitors to learn from people directly associated with Kalaupapa’s living and historical communities. Alternative C would provide a range of outreach materials and programs targeted on Molokai, Hawai‘i, the U.S., and at related international sites, such as web-based materials and multimedia connection with similar sites throughout the world.

Alternative D

An interpretation and education division would be established at the park which would have a beneficial impact on visitor experience. A wide range of new interpretive and educational programs onsite and at offsite locations would significantly enhance the quality, depth of understanding, and breadth of knowledge about Kalaupapa on the island of Molokai, in Hawai‘i, and through-out the world. New and greater opportunities to visit the site and engage in self-guided activities would dramatically and positively change the nature of interpretation and education about Kalaupapa. These new programs would raise awareness about Kalaupapa’s existence and history for youth and the general public and have a beneficial impact.

Alternative D would provide the most opportunities visitors to experience Kalaupapa on their own. It would also provide the greatest opportunities for the general public to visit Kalaupapa. Demonstrations for visitors would be offered about resource research and preservation such as archeological excava-tions, historic building rehabilitation, rare and endangered plant propagation and restoration, and marine monitoring. Additionally, traditional facility-based interpretive programs and opportunities for people to interact with rangers and park partners would be offered. These types of activities do not currently exist, and the creation of them would greatly enhance visitor learning about the history and types of resources at Kalaupapa.

Under this alternative, a long-range interpretive plan would be developed and subsequent content for educational and interpretive programs would focus on the interpretive themes in this GMP. Interpretive materials, exhibits, and diverse media, such as video, publications, and websites would be used to share information. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen’s disease community at Kalaupapa. These improved and new methods for interpreting Kalaupapa’s history to new audiences would greatly increase the quality of visitor experience at Kalaupapa and at offsite locations.

The development of curriculum-based educational programs and materi-als such as lesson plans and traveling educational exhibits about Kalaupapa would have beneficial impacts to visitor experience. NPS support for volunteer interpreters, including patients, ‘ohana, and kama ‘āina, would allow visitors to learn from people directly associated with Kalaupapa’s living and historical

communities. Alternative D would provide a range of outreach materials and programs targeted on Molokai, Hawai‘i, the U.S., and at related international sites, such as web-based materials and multimedia connection with similar sites throughout the world.

Cumulative Impacts

Under alternative A, the development of a limited interpretation and education division would be an improvement to providing interpretation and education at Kalaupapa. However, the limited nature of the program would result in a minimal amount of information being made available to the public. Telling the entire story of Kalaupapa would be a challenge with the continued lack of interpretation and education services. Given the limitations of the interpretation and education opportunities under this alternative, it would result in minor to moderate long-term adverse impacts cumulative impacts on interpretation and education.

Under alternative B, most of the interpretation and education would be provided offsite. The limited number of visitors to Kalaupapa would result in the increased need for interpretation and educational materials that could be accessed through various kinds of media and sources. With changing technology and increased opportunities to share information, the cumulative impacts from this alternative on interpretation and education would be beneficial.

The increased use of volunteers and stewardship groups to implement projects at Kalaupapa under alternative C would require a robust interpretation and education program. The development of a long-range interpretive plan and the establishment of an Interpretation and Education division would contribute beneficially to cumulative impacts.

Cumulative impacts for alternative D are similar to those described in alternative C. Increased visitation to Kalaupapa would benefit from an established interpretation and education program.

Conclusion

Under alternative A, the continuation of the current interpretation and education programs and the development of a limited interpretation and education program in the near term are a benefit to the visitors. However, in the long term interpretive and educational programming is unknown due to inevitable

transition in management from DOH to NPS. The continued lack of a full-scale interpretation and education division, formal programs, and limited learning opportunities could result in a minor adverse long-term impact on park visitors and ultimately the park resources.

Alternative B offers a wide range of offsite education and interpretation opportunities which would be a beneficial impact to park visitors as well as people who are not able to physically visit Kalaupapa. Indirect benefits of an education program increase awareness of resource preservation and encourage stewardship efforts.

Alternative C offers a wide range of onsite and offsite education and interpretation opportunities which would be a beneficial impact to park visitors as well as people who are not able to physically visit Kalaupapa. The nature of hands-on experiential learning and live demonstrations provides a greater opportunity for visitors to connect to the resources, in turn becoming future stewards for the resources. This alternative would benefit the park visitor and the resources.

Alternative D would provide a wide range of educational and interpretive opportunities for park visitors. Offsite opportunities would be more limited. Overall, the education and interpretive program under alternative D would benefit park visitors.

Alternative D offers a range of onsite and offsite education and interpretation opportunities which would be a beneficial impact to park visitors as well as people who are not able to physically visit Kalaupapa. Self-guided opportunities and live demonstrations would provide opportunities for visitors to connect to the resources. This alternative would benefit the park visitor and the resources.

Impacts on Visitor Use and Experience

Common to All Alternatives

In the near term, visitor experience would continue to be highly structured and primarily focused on Kalaupapa’s period of significance 1866–1969. The existing structure of shared DOH and NPS management of visitor use would continue. Existing DOH rules and regulations for visitation would continue in order to provide a well maintained community for the patient residents and to protect their privacy. The DOH would continue to manage the visitor permit and sponsorship system. The NPS would continue to manage visitor protection and facilities that support visitation. The continuation of DOH rule and regulations would honor the patient community’s wishes and would continue to protect their privacy. For visitors, these rules would continue to illustrate that DOH and NPS are continuing to provide for the needs and well-being of the patient residents.

Visitors would need a permit in advance to access the Kalaupapa Trail and the peninsula. The need to secure a permit from the DOH or make arrangements with the tour company would continue to be the standard method for visiting Kalaupapa. There would continue to be individuals, including some topside residents and kama ‘āina of Kalaupapa, who resent being denied access to the park.

Access to the Pālā‘au State Park would be unrestricted for day use, and the interpretive panels at the Kalaupapa Overlook would continue to provide basic information about Kalaupapa NHP.

In the near term, general public visitation would be limited to 100 people per day as specified in the enabling legislation and desired by the Kalaupapa Patients Advisory Council. This limit is rarely reached, so most visitors who are able to pay the fees for service can generally be accommodated to the park. Physical access to Kalaupapa is restrictive and a challenge, resulting in limited visitors. The number of mules that can traverse the access trail must be limited to less than 25 mules due to the severe erosion and damage to the trail caused from such use. Aircraft permitted to land at the Kalaupapa Airport are limited to nine-passenger or less planes per FAA regulations.

General public visitors would continue to be for day use only. This provision limits the duration of the tours to approximately four hours, and thus visitors are only able to see select features and areas of the park. In the near term, overnight use at Kalaupapa would continue to require a sponsorship by a Kalaupapa resident and stays would be limited to a total of thirteen days in a three month period. This requirement would continue to only allow overnight and/or multi-day opportunities to people with connections to Kalaupapa’s residents.

In the near term, visitors would continue to need an escort while visiting the historical park and be part of a paid organized tour. Visitor access would continue to be limited to select areas of the park, including the corridors from the top of the pali trail to the airport and out to Kalawao. Visitors would not be able to see or experience the entirety of the peninsula, Kauhakō Crater, Waikolu Valley, and many areas of the settlement. Organized tours for the general public would be provided. There would be no entrance fees, however fees for service such as the mule ride and tours would continue. While there is not a formal entrance fee, all visitors are required to be of a fee-for-service tour. The cost of the daylong tour and transport (either by mule or airplane) is high, and thus many people are not able to visit the park because of its high cost. This would continue to be an adverse impact to visitor opportunities.

The establishment of a new self-guided walking tour in the settlement could create a new experience for some sponsored visitors. It would be up to the tour company whether they would use the walking tour, which could benefit paying visitors as well.

Children under the age of 16 would not be allowed to visit Kalaupapa, though they would continue to be allowed within the park’s boundary at Pālā‘au State Park. There is a strong desire by educators and families to have children experience firsthand the stories of Kalaupapa. By not allowing children at Kalaupapa, youth would not be able to experience Kalaupapa which would continue to have adverse impacts on visitor experience and visitor opportunities.

DOH rules would continue, including prohibiting recreational uses that may not be compatible with the purpose of the park, such as surfing, scuba diving, mountain biking on unpaved roads, geo caching, skateboarding, and spelunking. Appropriate recreational uses would be identified in the superintendent’s compendium.

Alternative A

Same as Common to All Alternatives

Alternative B

In the near term, visitor use would continue to be managed same as Common to All Alternatives

In the long term, visitor opportunities and experiences would change with the absence of a living patient community and departure of DOH. The NPS would assume management of visitor use, though many of the existing rules and regulations would continue. As a result, visitor experience would continue to be highly structured. The continuation of DOH rules and regulations would honor the patient community while allowing visitors to experience Kalaupapa much as earlier visitors have done over the decades.

Visitors would need to make advance arrangements with a tour company, concession, and/or nonprofit entity to visit the park. In the long term, general public visitation would continue to be limited to 100 people per day. The visitor per day limit would be managed through a concession or nonprofit entity. On special event days, the cap on visitation could be limited, but there would be no more than four special event days per year. There could continue to be individuals, including some topside residents and kamaʻāina of Kalaupapa, who resent being denied access to the park.

Access to the Pālāʻau State Park would be unrestricted for day use, and the interpretive panels at the Kalaupapa Overlook would continue to provide basic information about Kalaupapa NHP. An interpretive center would be established at Pālāʻau State Park to provide visitors with additional information about Kalaupapa, so that visitors can learn about it and get a topside glimpse of Kalaupapa without actually visiting the park. Visitors could also access information via the internet and at other possible offsite locations. This would provide more interpretation than currently exists.

General public visitation would largely be for day use with some overnight opportunities. The park would offer overnight opportunities for individuals with preexisting associations and ancestral connections to Kalaupapa. These efforts would build collaborative partnerships for the rehabilitation of key historic structures and would strengthen partner connections to the park. Allow-

ing visitors to overnight in the park would greatly enhance visitor experience, though only a portion could be for the general public.

For most visitors, day use would be the norm. This type of visitor experience limits the duration of the visit to approximately four hours, and thus visitors are only able to see select features and areas of the park.

Visitors would need an escort while visiting the historical park beyond the settlement area and be part of a paid organized tour. Visitor access would continue to be limited to select areas of the park, including the corridors from the top of the pali trail to the airport and out to Kalawao. Visitors would not be able to see or experience the entirety of the peninsula, Kauhakō Crater, Waikolu Valley, and many areas of the settlement. There would be no entrance fees, however fees for service such as the mule ride and tours would continue. While there is not a formal entrance fee, all visitors are required to be of a fee-for-service tour. The cost of the daylong tour and transport (either by mule or airplane) is prohibitively high, and thus many people are not able to visit the park because of its high cost. This would continue to be an adverse impact to visitor opportunities.

The establishment of a new self-guided walking tour in the settlement could create a new experience for some sponsored visitors. Overnight visitors and potentially day visitors on a guided tour would have the freedom to use the walking tour.

Children under the age of 16 would not be allowed to visit Kalaupapa, though they would continue to be allowed within the park’s boundary at Pālāʻau State Park. There is a strong desire by educators and families to have children experience first-hand the stories of Kalaupapa. By not allowing children at Kalaupapa, youth would not be able to experience Kalaupapa which would continue to have adverse impacts on visitor experience and visitor opportunities.

Rules prohibiting recreational uses that may not be compatible with the purpose of the park would continue, such as surfing, scuba diving, mountain biking on unpaved roads, geo caching, skateboarding, and spelunking. Appropriate recreational uses would be identified in the superintendent’s compendium.

Alternative C

In the near term, visitor use would continue to be managed same as Common to All Alternatives

In the long term, visitor opportunities and experiences would change with the absence of a living patient community and departure of DOH. The NPS would assume management of visitor use. Many of the existing rules and regulations would change to allow easier access to Kalaupapa and to provide opportunities for learning and appreciation of Kalaupapa’s history and resources.

Visitors could make advance arrangements with a tour company, concession, and/or nonprofit entity to visit the park. Visitors would also have the ability and freedom to visit Kalaupapa for day use without advance reservations. The daily cap on visitation would be removed, though concession contracts and commercial use agreements would limit the number of individuals allowed on the mule ride, tours, and overnight accommodations. These changes would allow free access on foot and from the airport for a wide range of visitors, including topside Molokai residents and the general public. Special event days could allow unlimited access, which would also provide new opportunities for people to visit Kalaupapa. Changing and potentially increasing the allowable numbers of visitors at Kalaupapa would necessarily change visitor experience, though these changes would allow for more variety in visitor options and available to a much broader audience. People who cannot currently afford the fee charged to take a tour of Kalaupapa, would have a free option for visiting the park.

Access to the Pālāʻau State Park would be unrestricted for day use, and the interpretive panels at the Kalaupapa Overlook would continue to provide basic information about Kalaupapa NHP. A new kiosk would be constructed to provide additional information about visiting Kalaupapa and the new rules and

regulations for visitation. Visitor information would be available via the internet and at offsite locations such as the Hoolehua Airport. Consideration would be given to the establishment of a visitor facility in Kaunakakai in partnership with other public agencies or nonprofit organizations such as the Molokai Visitors Bureau and the topside Damien Center This would provide more interpretation and educational materials on Molokai than currently exists Without the need for new construction.

Alternative C emphasizes stewardship of Kalaupapa’s lands through hands-on learning and preservation activities. This emphasis would encourage youth and groups to visit and learn about Kalaupapa while working towards the preservation of Kalaupapa’s resources. It is intended that these groups could regularly access the park and stay overnight depending on lodging availability. This immersive type of experience would promote a stewardship ethic for Kalaupapa and would share Kalaupapa’s history with a broad and diverse audience.

Overnight opportunities would be offered to people with preexisting associations and ancestral connections to Kalaupapa and stewardship groups. Overnight use by the general public would be explored and supported, if financially viable. Allowing visitors to overnight in the park would greatly enhance visitor experience. People would be able to see the daily rhythms of Kalaupapa’s environment and community. Multiday visits would promote high quality immersive experiences that would greatly enrich people’s understanding and connection to Kalaupapa and its history.

After arriving at Kalaupapa, all visitors would be required to visit Paschoal Hall for mandatory orientation and entry pass. This requirement would impart the visitor rule and regulations before visitors could continue their day or multiday visit. This would foster visitor learning about the history and significance of Kalaupapa while also promoting compliance with the parks rule and regulations.



Visitors reading a wayside at Kalawao. NPS photo.

Visitors could access many areas of the park on organized tours, as part of stewardship or learning activities, and on their own to select features. Visitors would have free and unescorted access within the engagement zone, including from the top of the pali trail to the airport and from the settlement to Kauhakō Crater and Judd Park along Damien Road. This would allow visitors free access to the site of the original settlement at Kalawao. Visitors would need an escort to visit areas beyond the engagement zone; this could be as part of an organized tour or part of stewardship activities. Allowing visitors to access select areas on their own would provide visitors with opportunities for personal reflection and some personal independence while at Kalaupapa, while also making sure that visitors know and understand the visitation rules for their visit.

Children under the age of 16 would be allowed to visit Kalaupapa with adult supervision, and they would continue to be allowed within the park’s boundary at Pālā’au State Park. There is a strong desire by educators and families to have children experience firsthand the stories of Kalaupapa. By allowing children at Kalaupapa, youth would be able to learn about and experience Kalau-papa which would have beneficial impacts on visitor experience and visitor opportunities.

Rules prohibiting recreational uses that may not be compatible with the purpose of the park would continue, such as surfing, scuba diving, moun-tain biking on unpaved roads, geo caching, skateboarding and spelunk-ing. Appropriate recreational uses would be identified in the superinten-dent’s compendium.

Alternative D

In the near term, visitor use would continue to be managed the same as Common to All Alternatives

In the long term, visitor use would be managed similarly to alternative C with some differences. The differences are that alternative D would focus more on visitation by the general public with more historic buildings and facili-ties potentially available for overnight use by the general public if financially viable. This could provide more options for the general public. Alternative D would offer fewer types and numbers of programs for group activities engaged in stewardship activities. The engagement zone in alternative D is larger and would allow visitors unescorted access to many additional areas of the park;

these include a loop trail around the peninsula, loop trail around the crater, and access to Wailea Falls. Opening up areas of the park to greater access could result in resource damage, though for visitors it would create new opportunities to see areas of the park that are remote and contain rare resources. This could enhance visitor enjoyment and appreciation of Kalaupapa. In addition, depend-ing on the numbers of visitors, visitors could experience a sense of crowding which could detrimentally impact the quality of their visit.

Cumulative Impacts

The departure of the DOH would result in changes to the visitor use and expe-rience at Kalaupapa. DOH rules and regulations would be void, and an entity to manage visitor use would be necessary. Without guidance about how visitation would be managed, there could be adverse impacts on visitor use and experi-ence as well as resources, operations, and general management of the park. An obvious change will be the lack of a living patient community at Kalaupapa which will fundamentally change the character of Kalaupapa. This will nega-tively impact visitor experience, as part of the experience is seeing how Kalau-papa is still a functioning settlement for Hansen’s disease patients. However,



Visitors on a Damien Tour picnicing at Kalawao. NPS photo.

this change is inevitable under all alternatives, and planning for this change so that visitors can learn about and understand the patient community will be necessary. Cumulative impacts could be minor to major adverse and long-term.

Under alternative B, the departure of the DOH would result in changes to the visitor use and experience at Kalaupapa. DOH rules and regulations would be void, and the NPS together with partners, cooperating associations, conces-sioners, and/or nonprofit entities would be engaged in managing visitor use and experience. An obvious change will be the lack of a living patient community at Kalaupapa which will fundamentally change the character of Kalaupapa. This will negatively impact visitor experience, as part of the experience is seeing how Kalaupapa is still a functioning settlement for Hansen’s disease patients. However, this change is inevitable under all alternatives, and alternative B plans for this change so that visitors can learn about and understand the patient com-munity through providing a range of visitor opportunities. Cumulative impacts could be beneficial.

Alternative C would be the same as alternative B plus cumulative impacts could be beneficial and because of the increase in types and levels of new visitor ser-vices and opportunities.

Under alternative D, there is a potential for impacting the character of Kalau-papa from too many visitors and lack of stewardship activities. However, with the increase in types and levels of new visitor services and opportunities which would greatly benefit visitors, businesses, and/or nonprofit entities, impacts could be beneficial.

Conclusion

Under alternative A, in the near term, visitors would continue to be able to access Kalaupapa and learn about Kalaupapa’s history from the guided tours and from the interpretative materials at Pālā’au State Park. However, visitors would continue to need to follow the DOH rules, including the permit system, cap on visitor numbers, day use only option, escort only option to limited areas of the park, and age limit. The high cost of visiting the park would continue to deter and prevent many people from experiencing Kalaupapa. The impacts of continuing current management on visitation would result in minor to major adverse impacts on visitor experience and opportunities.

Under alternative B, in the long term, visitors would have additional opportuni-ties to access and visit Kalaupapa and learn about Kalaupapa’s history from the guided tours from the interpretive center at Pālā’au State Park, and potential limited overnight use. However, many of the existing rules would continue, including the permit system, cap on visitor numbers, focus on day use, escort only option to limited areas of the park, and age limit. Differences from alter-native A would be allowing special event days when the cap would be lifted, providing limited overnight use for those associated with Kalaupapa’s history, providing greater commercial visitor services, and allowing unescorted access within the settlement. The high cost of visiting the park would continue to deter and/or prevent many people from experiencing Kalaupapa. The impacts from alternative B would result in beneficial and adverse long-term impacts on visitor experience and opportunities.

Under alternative C, in the long term, visitors would have additional oppor-tunities to access and visit Kalaupapa and learn about Kalaupapa’s history from the guided tours, stewardship activities, from the interpretive center at Pālā’au State Park, and potential overnight use. Most of the existing rules would change, including the permit system, cap on visitor numbers, focus on day use, escort only option to limited areas of the park, and age limit. Providing new opportunities for visiting the park and making access to Kalaupapa more acces-sible would support a broader and more diverse audience of people who can learn about and appreciate the historical park. The impacts of these changes would result in beneficial and long-term impacts on visitor experience and opportunities.

Under alternative D, in the long term, visitors would have additional opportuni-ties to access and visit Kalaupapa and learn about Kalaupapa’s history from the guided tours, stewardship activities, from the interpretive center at Pālā’au State Park, and potential overnight use. Most of the existing rules would change, including the permit system, cap on visitor numbers, focus on day use, escort only option to limited areas of the park, and age limit. Providing new oppor-tunities for visiting the park and making access to Kalaupapa more accessible would support a broader and more diverse audience of people who can learn about and appreciate the historical park. The impacts of these changes would result in beneficial impacts on visitor experience and opportunities.

Commercial Visitor Services

Common to All Alternatives

In the near term, commercial activities operated by patient residents for tours and Fuesaina’s Bar would continue. The commercial use agreement with the mule ride operator would continue as long as it is viable. The NPS would continue to retain a cooperating association to operate the bookstore for educational and merchandise sales related to Kalaupapa. There would be no over-night commercial visitor services.

NPS involvement and management of concessions and commercial services would be guided by Public Law 95-565 which provides patients a first right of refusal to provide revenue-producing visitor services, including such services as providing food, accommodations, transportation, tours, and guides; and the General Lease No. 231 with DHHL that gives second right of refusal to native Hawaiians for revenue-producing visitor service after patients have exercised their first right of refusal.

Alternative A

Same as Common to All Alternatives plus long-term guidance for commercial activities is not provided in alternative A.

Alternative B

The bookstore would be operated and managed through a cooperating association. In the long term concessioners or nonprofit organizations would provide for visitor needs and services, including tours, mule rides, merchandise sales, general store, gas station, food and beverage service, and limited overnight lodging if financially viable. This increase in the number and extent of commercial visitor services would be a benefit to potential concessioners or nonprofit entities. It would provide additional services and opportunities for visitor learning and enjoyment that do not currently exist. In addition, resources would benefit from more people learning about them because visitors are more apt to be stewards of the resources when they have seen and experienced them. However, the scale of commercial activities would be limited, as the cap on visitor numbers and age limit would continue under alternative B. This would continue to limit the number of people and not allow youth to visit the park. This could result in commercial services that are not financially profitable, in which case the services may need to be provided by a nonprofit entity. Alternative

B does provide long-term guidance for commercial visitor services, and the right of second refusal for revenue generating visitor services would be maintained for native Hawaiian entities.

Alternative C

Same as alternative B plus the extent of commercial visitor services would be greater because of the removal of the cap on numbers of visitors per day and age limit. Larger numbers and greater diversity in the types of visitors who could come to Kalaupapa would be a benefit to the park. The larger operation of commercial visitor services could be profitable for a concessioner. If a nonprofit were to operate the services, then more funding from profits could be incorporated in to Kalaupapa’s programs. The addition of partners involved in stewardship activities could provide additional revenue for concessioners or nonprofit entities.

Alternative D

Same as alternative C plus the extent of commercial visitor services would be the greatest under alternative D. Opportunities to learn about and experience Kalaupapa through direct experience and with the support of commercial visitor services would be the greatest under alternative D. However, too many visitors and an absence of stewardship activities to support preservation of Kalaupapa could potentially detract from the ambiance, spirit, and character that make Kalaupapa special and unique for visitors.

Cumulative Impacts

Under all alternatives, cumulative impacts on commercial visitor services resulting from the departure of the DOH and the potential lack of patients willing and able to operate commercial services at Kalaupapa could have minor to major adverse long-term impacts.

Alternative A has the same cumulative impacts as all alternatives plus it is anticipated that a native Hawaiian entity would provide revenue-producing or nonprofit visitor services, though the parameters, management, and oversight is not provided. It is unknown what types of visitor services would be provided in the long term and what benefits or disadvantages could result from unplanned activities. For these reasons cumulative impacts from alternative A could have minor to major adverse long-term impacts.

of patients willing and able to operate services, as well as the lack of direction for long-term management of commercial visitor services could result in moderate to major adverse long-term impacts.

Under alternative B, limits on the number and age of visitors would continue which would result in adverse impacts on the diversity of visitors able to come to Kalaupapa. The enhanced use of a cooperating association, concessioners, and/or nonprofit entities would be a beneficial impact to commercial visitor service operators, visitors, and resources. The addition of more people to carry out the purpose of Kalaupapa NHP and share Kalaupapa’s history with future visitors and stewards is a benefit to the park.

Under alternative C, partners, cooperating associations, concessioners, and or/not profit entities engaged in providing additional visitor services, programs, and stewardship activities could result in moderate to major beneficial and long-term impacts on commercial visitor service operators, visitors, and resources. The addition of more people to carry out the purpose of Kalaupapa NHP and share Kalaupapa’s history with future visitors and stewards is a benefit to the park.

Under alternative D, cooperating associations, concessioners, and or/not profit entities would be engaged in providing additional visitor services, though there is a risk to Kalaupapa’s character if there are too many visitors and lack of stewardship activities. Actions in alternative D could result in beneficial impacts on commercial visitor service operators, visitors, and resources.

Under alternative B, cumulative impacts on commercial visitor services resulting from the departure of the DOH and the potential lack of patients willing and able to operate commercial services at Kalaupapa would not have the same adverse impacts on commercial services as alternative A. This is because alternative B provides guidance for the types and levels of services that could be offered in the future by native Hawaiian and/or nonprofit entities. Cumulative impacts for alternative B could be beneficial.

Cumulative impacts for alternative C are the same as alternative B plus cumulative impacts could be beneficial because of the increase in types and levels of new visitor services and opportunities.

Under alternative D, there is a potential for impacting the character of Kalaupapa from too many visitors and lack of stewardship activities. However, with the increase in types and levels of new visitor services and opportunities which would greatly benefit visitors, businesses, and/or nonprofit entities, impacts could be beneficial.

Conclusion

In the near term, for all alternatives, commercial services provided to visitors would remain as they are today. The commercial services offered to visitors today are a benefit to the visitors as they get to learn about Kalaupapa through organized tours. The resources at Kalaupapa also benefit from the current commercial services offered to visitors in that when visitors know more about the resources they are more apt to be stewards of the resources. However, the visitors would need to continue to follow the DOH rules, including the permit system, cap on visitor numbers, day use only option, and escort only option to limited areas of the park, and age limit. The high cost of visiting the park would continue to deter and prevent many people from experiencing Kalaupapa. The impacts of continuing current management for commercial visitor services would result in moderate to major adverse impacts on commercial visitor service operators and visitor experience.

The limited opportunities for commercial activities and special uses allowed under alternative A would be a moderate adverse long-term impact to Kalaupapa’s commercial visitor services because there would continue to be limited services and activities to accommodate the visitor’s needs and to enhance their experience at Kalaupapa. In addition, the departure of the DOH, potential lack

Impacts on Sustainable Practices and Responses to Climate Change

Common to All Alternatives

The NPS would strive to be energy independent by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices. Existing efforts to achieve these goals would continue, including encouraging bicycle use for transportation, operating the community’s recycling program, installing photovoltaic panels in selected areas, and engaging in the NPS’s Climate Friendly Parks program and Climate Action Plan. The NPS would seek to minimize motor vehicle use by staff, volunteers, and visitors to reduce gas consumption and carbon emissions. The NPS would encourage a “pack-in, pack-out” policy for all visitors. Taken together these actions would move the park toward more efficient and sustainable practices and reduce the park’s carbon footprint.

While the park would monitor natural and cultural resources for impacts related to climate change through its inventory and monitoring programs, it is unlikely the park would take actions to attempt to halt or reverse these long-term effects. Important native Hawaiian cultural sites and historic structures along the shoreline could be impacted by sea level rise and increased storm events. The park would make decisions about actions to protect these resources on a case-by-case basis.

Alternatives B, C, and D

Alternatives B, C, and D present opportunities for further planning (including analysis and design) and implementation of sustainability activities. Implementation of park sustainability actions would result in projects and programs to construct alternative energy providers. This would reduce or eliminate dependence on energy (electricity) generated outside the park and remove or greatly reduce park dependence on a fossil fuel-powered fleet.

The NPS would determine the ultimate uses of all Kalaupapa NHP facilities and estimate the number of park users and the intensity and duration of their presence on site (24 hours/day, daytime only, etc.).

The NPS would also determine energy usage targets. These would be used to estimate total energy usage in kilowatt hours/year to design either a renewable energy generation system, or a system combining of renewables with some continued dependence on the grid.

Implementation of a sustainable system would result in a reduction in greenhouse gasses, as well as improved operations and maintenance. Concentrating renewable energy production equipment in a single location—such as a solar or wind farm—close to the end users would result in more efficient equipment installation, service, and replacement. Also, transmission losses due to distance would be reduced. The greatest impacts would be local, but less dependence on the diesel-fired generation plant for Molokai would reduce the amount of greenhouse gases produced by that plant.

Water usage reduction and monitoring would be beneficial to the park. Less water for irrigation and other human uses would allow more of that resource to remain in the natural environment—both in the park’s terrestrial area and flowing into the surrounding ocean. It would also mean less use and pressure on the sewage system.

Water usage can be projected in the same manner as energy usage, based on facility use, numbers of users, and gallons of water required per year for human use and landscape maintenance.

Energy conservation and fleet conversion would be overwhelmingly beneficial to the park and beyond in terms of greenhouse gas reduction.

Cumulative Impacts

For all alternatives, actions taken by others in the region, such as increased development on Molokai and in Hawai‘i, continued reliance on fossil fuels for power generation, as well as the move toward encouraging energy production from wind would all contribute to both negative and beneficial impacts to sustainable practices and responses to climate change in Hawai‘i. Because of Kalaupapa’s small population, limited development, and move toward energy independence, NPS actions at Kalaupapa would be negligible in the context of Molokai and the State of Hawai‘i.

Impacts on Access and Transportation

Common to All Alternatives

In the near term, the current DOH permitted options for entering the historical park and the 100 visitors per day cap would continue. These restrictions limit access to only visitors with permits. People who want to visit Kalaupapa spontaneously, Molokai residents and those without a permit, and people who are unable to pay the tour, mule, and/or air travel costs are not allowed. These limitations follow DOH rules, though they prevent access to a variety of potential visitors. This is a long-term minor to moderate adverse impact.

The NPS would continue to maintain the pali trail in its current condition for foot and mule traffic which would provide safe access from topside Molokai for visitors and staff. The steep trail conditions limit access to people who are physically capable of walking or riding a mule. Thus, people with physical disabilities cannot access Kalaupapa via land, though they can access the park via air. This is negligible to moderate adverse impact, though there are not viable or supported options for changes to land access.

The Kalaupapa Airport would continue to serve the transportation needs of the Kalaupapa community and visitors to the historical park. Maintaining air access to the Kalaupapa Airport would continue use for the transport of visitors, staff, supplies, garbage, and for emergencies. Current flight paths, schedules, and costs appear to meet the needs of the visitors and residents. The airport’s size and lack of emergency response facilities limits the size of airplanes to Kalaupapa. If interest to visit Kalaupapa increases in the future, current air transportation patterns could be insufficient to meet demands. Impacts related to air access and transportation are negligible to minor beneficial and adverse.

Water access to Kalaupapa NHP would continue to be limited to barges that provide general supplies and project materials to Kalaupapa and official NPS boat access associated with marine resources management. Sea access for visitors would continue to be prohibited for safety reasons. Impacts related to water access would be negligible.

Roads within Kalaupapa would be maintained. Transportation by motor vehicles within Kalaupapa would be reduced. Whenever possible, the NPS would

Alternatives B, C, and D provide opportunities for more people to visit Kalaupapa which could offset some gains in conservation. However, the renewable energy program would be designed to accommodate additional use which would result in long-term beneficial impacts to operational efficiency and sustainability. Likewise, increased visitation could put additional pressure on water usage and garbage and recycling. Increased visitation would also increase vehicle use along routes on Molokai and plane travel to Kalaupapa airport which would increase the park’s carbon footprint.

Conclusions

For all alternatives, the continued goal to be energy independent would have beneficial impacts to sustainable practices and how the NPS is managing its responses to climate change.

For alternatives B, C, and D, energy and water conservation and conversion of the fleet to renewable power would be overwhelmingly positive and would result in beneficial impacts to sustainable practices and responses to climate change.



Maintaining the weather station on the Kalaupapa Peninsula. NPS photo.

use fuel efficient vehicles, bicycles, and pedestrian transport for both visitors and operations within the settlement.

Areas beyond the settlement would continue to be accessed only by patients, staff, and permitted visitors with an escort. Some visitors express a desire for access to see and experience these areas. In the near term, this would be a negligible to minor adverse impact to access and transportation.

Overall impacts on access and transportation due to these cumulative impacts would be negligible to minor long-term beneficial and adverse.

Conclusion

Access is limited at Kalaupapa due to the current rules and regulations on access, the high costs of visiting the park, limited points and methods to access the park, and limited access for people with disabilities. For these reasons, impacts of continuing current management would result in negligible to moderate adverse impacts on access and transportation.

Land Access and Pali Trail

Alternative A

Same as Common to All Alternatives

Alternative B

Same as Common to All Alternatives, plus these impacts would continue in the long term.

The pali trail would be improved by clearing vistas, establishing rest stops, and defining places for mules to pass. These improvements would allow for safer and easier access to Kalaupapa along the pali trail. The risk of trail failure due to natural causes would still be present. Enhancing the pali trail would be a benefit to the longevity and increased safety of the trail. There would be a benefit to visitor’s experience and access by providing unobstructed overlooks for safe scenic viewing to the park with adequate rest stops on the three mile difficult trail. It would be beneficial to park operations because of enhanced safety as well as assistance in trail maintenance from partners and concessioners.

The NPS would continue to assist the local community with the trail planning adjacent to the park on topside Molokai which would increase opportunities within Kalaupapa and Pālā’au State Park. The trail system adjacent to the park on the topside of Molokai would be a benefit by providing additional alternative access to trails that overlook Kalaupapa. Additional trails topside would be a benefit by providing a better connection between key visitation site for visitors with limited mobility or for those who cannot afford to physically visit the park.

Alternatives C and D

In addition to the common to all alternatives actions for the near term, some actions in the long term would result in changes to access and transportation.

The changes to the rules and regulations for visitor access to the park are the largest changes. These changes include potentially lifting the cap on number of people visiting the park, allowing day use access without a permit, providing more opportunities to access areas beyond the settlement. This would allow a wider variety of people to access the park.

Increased use on the pali trail could deteriorate the conditions of the trail. However, actions and impacts related to improvements to the pali trail would work to mitigate any deterioration caused from increased use. In addition, assistance to the local community for trail planning would be the same as alternative B.

Cumulative Impacts

The pali trail is located on a very steep slope, and there is the risk of landslides, particularly related to heavy rains. In the event that sections of the pali trail are impacted, land access via the pali trail could be closed whereby stopping access to Kalaupapa. The park has taken actions, including replacing bridges in landslide prone areas, to ensure continued access on the pali trail. However, access via the pali trail will continue to be physically strenuous and the route could be impacted from natural causes that are outside the control of the NPS. Over the long term, there could be increased pressure from visitors wanting to access Kalaupapa. Increased foot traffic on the pali trail could require more maintenance and engineered supports and bridges in sensitive sections of the trail to ensure safe access. The real risk of landslides, potential for increased traffic that would require additional maintenance, and not being able to ensure

land access to Kalaupapa at all times could create negligible to minor adverse long-term impacts.

Conclusion

The following conclusions are in addition to the “Impacts to Visitor Use and Experience” analysis.

Alternative A’s impacts would be negligible to moderate and adverse.

Alternative B maintains existing access rules and regulations in the long term which would result in long-term negligible to moderate adverse impacts. Improvements to the pali trail and assistance to topside community for trail planning would result in long-term minor beneficial impacts.

Under alternatives C and D, changes in rules and regulations over access and transportation, improvements to the pali trail, and assistance to the topside community for trail planning would result in long-term minor to moderate beneficial impacts.

Air Access and Kalaupapa Airport

Alternatives A and B

Same as Common to All Alternatives

Alternative C

Same as Common to All Alternatives plus allowing visitors to access Kalaupapa for day use without a permit and for overnight use would make it easier for people to visit Kalaupapa. Many of them may use air transportation, as it is the fastest and most convenient way to travel to Kalaupapa. This potential increase in use could generate more plane traffic in and out of Kalaupapa. In addition, with more visitors, there would be an increased need for transporting supplies, garbage, and in cases of emergency. While the changes to rules and regulations would allow greater access to the park which would be beneficial, it would create additional pressure on NPS and DOT operations at the Kalaupapa Airport and throughout the park as well as impacts on the natural and cultural soundscape which could be adverse.

Alternative D

Same as alternative C plus larger planes with a limit of 20 passengers would potentially be allowed to use the Kalaupapa airport. Emergency fire response at the airport would be required to increase limit. The required addition of the enhanced fire response would be a benefit to the safety of the park staff and visitors, but could result in changes to operations at the airport and increased operations expenses. The increase in plane size and expanded fire and safety requirements would result in beneficial impacts on access and transportation though these changes could have adverse impacts on overall historic character, visitor experience, and operational efficiencies.

Cumulative Impacts

DOT and air carriers determine the number and frequency of flights to Kalaupapa Airport. Once the DOH leaves Kalaupapa, air access could change. Potential changes that could result include reducing or adding the number of flights, change in airfare, and change in carriers. Changes to access via airplane would largely be beyond the control of the NPS and could be negligible to minor adverse and long-term.

Conclusion

The following conclusions are in addition to the “Impacts to Visitor Use and Experience” analysis.

Alternatives A and B’s impacts related to air access and transportation are negligible to minor beneficial and adverse.

Alternative C offers greater access by air to Kalaupapa which is a long-term negligible to moderate beneficial impact. However, increased use could also cause additional operational responsibilities and increased air traffic at the Kalaupapa Airport which could be long-term negligible to minor and adverse.

Alternative D is the same as alternative C plus additional emergency fire response would benefit the safety of air travelers.

Sea Access and Kalaupapa Pier

Alternatives A, B, C, and D

Same as Common to All Alternatives. In addition, if there are more visitors, increased use of the barge and Kalaupapa Dock may be necessary to transport supplies for the park.

Cumulative Impacts

Climate change could cause some changes to the safety of sea access with potentially rougher swells. The improved Kalaupapa Dock ensures greater safety for barges and other boats. Impacts would be negligible.

Conclusion

The following conclusions are in addition to the “Impacts to Visitor Use and Experience” analysis.

Impacts from all alternatives would be negligible.

Kalaupapa Roads and Trails

Alternative A

Same as Common to All Alternatives

Alternative B

The NPS would develop a transportation plan. This plan would address how visitors travel within Kalaupapa and would provide guidance for types of vehicles, changes in circulation, and would address universal accessibility. It is expected that implementation of a transportation plan would be a beneficial impact to access and transportation.

The continued maintenance of roads, parking areas and trails is a benefit to access and transportation. Visitors benefit from safe, well defined and signed access routes within Kalaupapa. The resources would benefit from the circulation of visitors and staff being kept to defined areas to minimize resource damage and that maintain the historic character. Improved locational and directional signage would be a benefit.

Alternative C

Same as alternative B plus changes to access rules and regulations would allow people to access the rim of Kauhakō Crater and Kalawao on their own. This would be a beneficial long-term impact to access and transportation.

Alternative D

Alternative D is the same as alternative C. In addition, the NPS would establishment of a new trail to Kalawao using the old Damien Road, an established trail to Wai‘ale‘ia Valley, a loop trail around Kauhakō Crater, and the existing unpaved road around the peninsula would be adapted to allow for pedestrian access. Development, operations, and maintenance would be substantial. While these would benefit access to the areas, these new developments and access could cause adverse impacts on cultural and natural resources.

Cumulative Impacts

Under alternatives C and D, more open access to Kalaupapa would likely result in more visitor in the settlement and peninsula. However, numbers of visitors would be controlled, and visitors could be limited if the facility capacity is being reached. More people at Kalaupapa would increase use of access and transportation routes which in turn could require additional maintenance. Cumulative impacts would be negligible to minor long-term beneficial and adverse.

Conclusion

Under alternatives B, C, and D, a transportation plan, maintenance of the existing character of the roads, and improved signage would all result in beneficial impacts on access and transportation.

Under alternative D, new trails would substantially increase public access to new areas of the park which would result in beneficial impacts on access and transportation.

Impacts on Operations

Operational Facilities

Common to All Alternatives

The existing use of historic structures and facilities by patient residents, DOH, NPS, and partners within Kalaupapa NHP would continue in the near term.

The alternatives do not call for new facilities within the Kalaupapa peninsula, however new facilities may be deemed necessary in the future if adaptive re-use of existing structures is clearly not feasible for the required function. Any new construction would be designed to be architecturally compatible with the settlement’s historic structures and character and would be sited to be compatible with historic uses and the visual character of the settlement. Any new construction would incorporate sustainable energy systems. In the long term, the NPS could explore other options for administrative facilities in partnership with the state.

In the near term, the NPS would continue to maintain all administrative facilities transferred to the NPS from DOH within the boundary of the park. The NPS would also continue to share use of administrative facilities with DOH where feasible. NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.

The NPS would continue to manage infrastructure for the historical park, including the water, sewage, and electrical systems. The number of cesspools would be reduced and converted to septic systems where feasible. The water system would also be improved for water conservation measures. The NPS would also consider burying utility lines to improve viewsheds and decrease long-term maintenance costs.

Communications facilities would be maintained to provide phone, radio, and internet connectivity to Kalaupapa Settlement. If additional communication facilities were constructed in the park such as HAM Radio and cell tower opportunities, they would need to be compatible with the historic scene.

Alternative A

In the near term, the NPS would continue to maintain all NPS managed administrative facilities within the boundary of the park. The NPS would also continue to share use of administrative facilities with DOH where feasible. NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.

Alternatives B, C, and D

The alternatives do not call for new facilities within the Kalaupapa peninsula, however new facilities may be deemed necessary in the future if adaptive re-use of existing structures is clearly not feasible for the required function. Any new construction would be designed to be architecturally compatible with the settlement’s historic structures and character and would be sited to be compatible with historic uses and the visual character of the settlement. Any new construction would incorporate sustainable energy systems. In the long term, the NPS could explore other options for administrative facilities in partnership with the state.

The NPS would continue to manage infrastructure for the historical park, including the water, sewage, and electrical systems. The number of cesspools would be reduced and converted to septic systems where feasible. The water system would also be improved for water conservation measures. The NPS would also consider burying utility lines to improve viewsheds and decrease long-term maintenance costs.

Communications facilities would be maintained to provide phone, radio, and internet connectivity to Kalaupapa Settlement. If additional communication facilities were constructed in the park they would need to be compatible with the historic scene.

Cumulative Impacts

Past and ongoing projects, including road and facility maintenance and repairs would have a beneficial impact on park operations. Aging facilities and infrastructure, including utilities and systems, would continue to be repaired, upgraded, or replaced as needed on a case-by-case basis, subject to available funding.

Conclusion

Under alternative A, the continued use of the historic buildings at Kalaupapa for administrative purposes would benefit the buildings in that they would continue to receive some level of maintenance and upkeep.

The thoughtfulness to adaptively reusing the historic buildings and attempting to avoid new construction would be a benefit to the cultural landscape under alternatives B, C, and D This effort would help to maintain the historic setting of Kalaupapa. Additionally, the use of some of the historic buildings would be a benefit to the preservation of the buildings. A used building is often better maintained and does not deteriorate as quickly as an unused building.



Left: View over the Kalaupapa Settlement from the Kauhakō Crater. Right: The old bakery in Kalaupapa Settlement, later the arts & crafts house. NPS photos.

Impacts on Land Use

Alternative A

Under alternative A there would be no changes to existing land use, and there would be no additional lands added to the current park boundary.

Alternatives B, C, and D

Under alternatives B, C, and D, land use changes within the park would be negligible. Management zoning would guide land use and would ensure the long-term protection and preservation of these lands.

External boundary modifications would be recommended that would ensure the long-term protection of nationally significant resources within the North Shore Cliffs National Natural Landmark. The proposed boundary additions for these alternatives include Pelekunu Preserve and a portion of Pu‘u O Hoku Ranch. These areas would be managed as a “Preserve” whereby hunting, fishing, and collection would be allowed, following State of Hawai‘i Department of Forestry and Wildlife rules and regulations. Today, these lands have not experience much development because the owners currently have a preservation mission or want to maintain the lands in conservation. However, future owners of the properties could have different visions for these areas that could include more intensive use of these areas.



Impacts on Safety and Security

All Alternatives

Safety and security would continue to be a high priority for the NPS in its management of Kalaupapa NHP. Therefore, safety and security efforts would be the same for each alternative. The NPS would continue current partnerships with emergency management agencies, including Maui County Police and Fire and United States Coast Guard for search and rescue operations, air medical transport, and law enforcement. Emergency medical services would include first responder capability. The NPS would adapt and modify the current DOH emergency management plan to meet the needs of the changing Kalaupapa community.

The NPS would institute the Kalaupapa NHP *Fire Management Plan* (2011), including establishing and maintaining fire breaks around the settlement and maintaining existing fire suppression systems and adding new fire suppression systems to historic buildings as feasible.

Kalaupapa NHP has prepared a tsunami and flood plan that includes the establishment of an evacuation center, signs, emergency, sirens, and the identification of the tsunami inundation zone. The NPS would continue to implement this plan.



Cumulative Impacts

There are no proposed future actions that would result in adverse cumulative impacts for a boundary expansion at Kalaupapa. There would be negligible cumulative impacts.

Conclusion

Land use impacts within the boundary of Kalaupapa NHP would be negligible.

Management by the NPS and designating these areas as part of the national park system would provide the most effective long-term protection of the area and provide the greatest opportunities for public use. The recommended areas would complement and enhance Kalaupapa NHP’s legislated purpose “to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features” (Public Law 95-565, Sec. 102).

The intent of this proposed boundary modification is to preserve, in perpetuity, the majestic geology, outstanding scenery, native terrestrial flora and fauna, and Native Hawaiian archeological resources and cultural values of the North Shore Cliffs National Natural Landmark while allowing appropriate and sustainable uses. NPS management and protection of these lands would have beneficial impacts.



Left: Oceanside Pavilion and General Warehouse. Right: View along the North Shore Cliffs towards Pelekunu Preserve. NPS photos.

Cumulative Impacts

Past, present and anticipated projects that would contribute to impacts on safety and security at Kalaupapa NHP include the departure of the Department of Health from Kalaupapa. The departure of the DOH places the responsibility of safety and security within Kalaupapa NHP on the National Park Service. Future planned projects would contribute to a greater need for safety and security. The National Park Service, in partnership with Maui County Police and Fire and United States Coast Guard, would develop a safety and security plan. These changes would have minor adverse long-term cumulative impacts on safety and security because of the need for the development and implementation of a new safety and security plan.

Conclusion

The impacts on safety and security at Kalaupapa NHP would be beneficial because the National Park Service is committed to carrying out all activities with the utmost attention to safety and security for park visitors and staff. There would be some minor adverse impacts when the NPS takes over the sole responsibility for safety and security after the departure of the DOH because of the added responsibility.

The continued focus on safety and security at Kalaupapa including the implementation of the 2011 fire management plan is a benefit to the visitors and the park staff. The fire management plan also would benefit human safety as well as resource preservation.



Left: Kalaupapa Store, 1930s. Photo by Franklin Mark. Right: Kalaupapa Store today. NPS photo.

Impacts on Socioeconomics

This analysis relies on qualitative analysis of the impacts of each alternative, spending values are for comparison only, and influence area data was mainly available at the broad Maui County, Molokai Island, and Hawai‘i state level. The area where the Kalaupapa is located is less densely populated and geographically separated from other parts of the island by the North Shore cliff range. For the purposes of this analysis, the localized area, is Kalaupapa NHP or Kalawao County. The influence area, or the island, includes the island of Molokai as well as the towns of Kaunakakai, Kualapu‘u, and Maunaloa. Changes in the number of jobs, personal incomes, business revenues, hotel vacancy, visitation, and social environment typically have greater impacts on the localized area than they do on the influence area.

The following section evaluates the impacts on demographics, economics and social characteristics. For demographics and economics, the evaluation was based on the influence area. The impacts on social characteristics were evaluated on both the localized area and the influence area.

The analysis of the no-action alternative compares impacts of current management in 2012 and 2013 of existing management policies and programs to impacts of continued management in the short term. In alternatives B, C, and D, impacts on the socioeconomic environment would result from increases in operational spending, visitation, and visitor spending. The impact of alternatives B, C, and D is evaluated in comparison with the no-action alternative.



Implementation of alternatives B, C, and D would occur against the same backdrop as the no-action alternative in demographics, economics, and social changes across the island. The economic and social effects of alternatives B, C, and D would add to those changes, but would not fundamentally change the island’s economic and demographic outlook.

Impacts on Demographics

Alternative A

Kalaupapa NHP has a Native Hawaiian hiring preference, however with no changes in base staff levels, demographics and population would remain stable in the short term. The implementation of this alternative would not change the population or demographics of the island, but instead remain stable.

Alternative B

Alternative B would have little to no impacts on the island’s population growth. Additional employees proposed in alternative B include 14 new permanent full-time equivalents (FTEs). Additionally, either a nonprofit or concession operation would begin operations and add staff onsite at Kalaupapa. Many new NPS and other staff proposed in this alternative would likely come from the island of Molokai or the State of Hawai‘i, in accordance with the park’s legislated Native Hawaiian preference hiring authority. Overall, there would be little to no change in demographics to the island over alternative A. Impacts of very little increases in population include demand for housing either within the park or on the island of Molokai, which can cause an increase in home values and rental rates, and increased government tax revenues. Socioeconomic impacts of population increases also include potential for greater demands on government services, including schools, sanitation, and water; more crowding; and traffic within Kalaupapa or Molokai. However, such small changes in population would cause very little impact.

Alternative C

Same as alternative B except alternative C would include 18 new permanent full-time equivalent employees.

Alternative D

Same as alternative B except alternative D would include 21 new permanent full-time equivalents employees.

Economic Impacts on Influence Area

Alternative A

Current NPS spending for future projects are mainly in repairs and rehabilitation of historic structures and is funded by approximately \$4.2 million. Increases in the National Park Service spending during construction would result in beneficial short-term impacts; beneficial long-term impacts may also result from increases in yearly budgets for continued maintenance of these historic structures. No new facilities are proposed in this alternative, unless adaptive re-use is not feasible for existing structures. Companies in the construction industry, specifically in repair, historic preservation, and adaptive re-use could see increased business if this work is contracted out to private businesses. This in turn could strengthen this type of employment and incomes, meaning that perhaps instead of providing new jobs, workloads would expand to fill unused worker capacity. Workers frequenting the area would spend income on food and materials, increasing service business and government sales tax revenues.

Kalaupapa NHP spending would also have beneficial long-term effects. Employment of staff would keep jobs in the island and generate personal income that would be spent in the area. The staff spends a percentage of income on housing, food, entertainment, and other services, which would increase incomes in those industries, government tax revenues, and housing. However, new staff would put demand on local government services such as schools. NPS spending on operations also has a long-term positive impact on employment and incomes. The continued impact of this spending is moderate and beneficial, however since the no-action alternative proposes no changes to annual operational spending, no new impacts would occur.

Existing partnerships with state and local agencies would continue in the no-action alternative in the use of facilities and visitor management. State and federal spending together would be maintained at the current levels with the continuance of existing partnerships.

The communities of Kualapu‘u, Maunaloa, and Kaunakakai have varying degrees of economic relationships to Kalaupapa National Historical Park. These communities’ businesses offer lodging, food, shopping, and other services to tourists; as well as housing and other needed services for staff. There would be no changes to affect local commercial businesses.

NPS spending on operations in the historical park also has an impact on employment and incomes. Since the no-action alternative proposes little to no detectable changes to annual operational spending, no new impacts would occur.

Under the no-action alternative, visitation would be maintained at the current restriction levels, resulting in no economic change to local businesses. Visitation would continue to affect the economic environment by providing business sales, employment, incomes, and government tax revenues.

Present management policies and programs would continue and continuance of construction spending would impact local businesses. Overall, the continuing impact and maintained levels of visitation, partnerships, and park operations would continue to have a moderate beneficial impact on local businesses and the island.

Alternative B

Increases in NPS spending in construction and historic preservation would result in beneficial short-term impacts. Beneficial long-term impacts would also occur due to the resulting increases in annual budgets of new or upgraded facility maintenance and new employee wages. Annual maintenance and operational spending at Kalaupapa would increase spending from \$4.2 million in the no-action alternative to \$5.9 million. Companies in the construction industry, specifically in maintenance and historic preservation could see increased business if this work is contracted out to private businesses. This in turn could strengthen this type of employment and incomes, either by providing jobs or expanding workload to fill unused worker capacity. If they are from off the island of Molokai, construction workers frequenting the area would spend income on food and services, increasing neighboring service and commercial business and government sales tax revenues. While this type of spending could strengthen these areas of the economy, it would be to a small degree in relation to the island’s total economy. Construction of topside visitor facility at Pālā’au State Park would increase state expenditures and work in the construction industry. This in turn could increase visitation to Kalaupapa and visitor spending on the island.

An extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations on the island of Molokai, State of Hawai’i, and throughout the United States is proposed in this alternative. This outreach program

would increase NPS spending related to staff travel, production of educational materials, and potential partnerships with organizations and other entities.

Existing partnerships with state and local agencies would be strengthened in this alternative in the use of facilities and visitor access. Partnerships would have very little to no impact on the influence area economy, but a change from combined state and federal spending to predominantly federal spending would occur. Modifications to the Kalaupapa NHP boundary to include Pelekunu Preserve and Pu’u O Hoku Ranch would lead to an increase in management area and expenditures for the NPS and a decrease in expenditures by the current owners of these properties. This would not affect the island’s economy, but would be a transfer in expenditures from state, nonprofit, and private to federal.

Employment of 12 more FTE staff at Kalaupapa NHP would generate personal incomes that would be spent in the area. Employees would spend a percentage of income on housing, food, entertainment, and other services, which would increase incomes in those industries, government tax revenues, and housing. Some of the staff would live in park housing, while others may live in houses offsite, boosting the housing market. The impact of wages for increased staff would lead to a beneficial impact on the island’s economy.

The actions proposed in alternative B would result in small increases in the number of visitors (though the limit would continue to be capped at 100 people per day), length of visitor stays, and visitor spending. Increased visitation would strengthen employment, business sales, and incomes in the tourism industry, as well as government tax revenues. Increased tourist operations and services, either by a nonprofit or concession, are also proposed in this alternative. Expansion of visitor services, if financially viable, would include a bookstore, tours, mule rides, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging. Visitor spending would be expected to increase due to the wider range of visitor opportunities, including potential overnighting in the historical park. Access would also be allowed on specific days for special events for those who have preexisting connections to the park. The restrictions being lifted would have a beneficial impact to the park and commercial services, with increased visitation affecting the economic environment. This visitation would cause business sales and services, employment, incomes, and government tax revenues to rise.

tive C, available facilities for partner use and expanded visitor access would strengthen existing partnerships with state and local agencies.

Employment of 16 more FTE staff at Kalaupapa would generate personal incomes that would be spent in the area. Employees would spend a percentage of income on housing, food, entertainment, and other services, which would increase incomes in those industries, government tax revenues, and housing. Some of the staff and would live in park housing, while others may live in houses offsite, boosting the housing market. The impact of wages for increased staff would lead to a beneficial impact on the island’s economy.

The actions proposed in alternative C would result in moderate increases in the number of visitors (specifically visitor groups), length of visitor or visitor group stays, and visitor spending.

Taken as a whole, the levels of visitation, partnerships, and park operations in alternative C would increase economic activity on Kalaupapa and Molokai. State expenditures would decrease and federal expenditures would rise; this would have little effect on the total island’s economy.

Alternative D

Same as alternative B except in alternative D, increases in NPS spending in

construction and historic preservation would result in beneficial short-term impacts. Long-term beneficial impacts would also occur due to the resulting increases in annual budgets for costs of new or upgraded facility maintenance and new employee wages. Annual maintenance and operational spending at Kalaupapa would increase spending from \$4.2 million in the no-action alternative to \$6.4 million.

A broad range of learning and educational opportunities to share Kalaupapa’s history would be available in this alternative by escort or self-guidance, meaning a lot more unstructured exploration of Kalaupapa than in the no-action

Taken as a whole, the levels of visitation, partnerships, and park operations in alternative B would increase economic activity at Kalaupapa and Molokai. State expenditures would decrease and federal expenditures would rise; this would have little effect on the total island’s economy.

Alternative C

Same as alternative B except in alternative C, increases in NPS spending in construction and historic preservation would result in short-term beneficial impacts. Beneficial long-term impacts would also occur due to the resulting increases in annual budgets for costs of new or upgraded facility maintenance and new employee wages. Annual maintenance and operational spending at Kalaupapa would increase spending from \$4.2 million in the no-action alternative to \$6.2 million.

Hands-on learning activities and service for resource stewardship of Kalaupapa NHP through volunteer organizations or individuals would be magnified in alternative C. Through the use of volunteers, the number of individuals helping the park in its preservation efforts would increase. Volunteer groups and individuals frequenting the area, to help in hands-on activities, would spend income on food and materials, increasing service business and government sales tax revenues. Therefore, the length of stay and spending of these volunteer groups and individuals would increase having a beneficial impact to the influence area economy. Related increases would occur in NPS operational spending, specifically in the interpretive division, for preparatory time, materials, orientation sessions, tours, interpretive exhibits, contact stations, and centers. An outreach program to share Kalaupapa’s history with a wide audience at offsite locations on the island of Molokai and the State of Hawai’i is proposed in this alternative. This outreach program would increase NPS spending related to staff travel, production of educational materials, and potential partnerships with organizations and other entities. Under alterna-



Pu’u Ali’i Natural Area Reserve. NPS photo.

alternative. The focus would be directed towards onsite visitor learning and enjoyment by the general public. Self-guided interpretive programs, traditional facility-based interpretive programs and opportunities for people to interact with rangers or partners of the park, as well as demonstrations for visitors about resource research and preservation would be increased. Limited offsite programs in the island of Molokai are proposed in this alternative that would increase NPS spending for space rental and printing of educational materials, but benefit the extended influence area by renting their space and decreasing state expenditures. Overall, proposed demonstrations, programs, and activities would increase NPS spending.

Employment of 20 more FTE staff in the influence area would generate personal incomes that would be spent in the area, along with their families.

The actions proposed in alternative D would result in moderate increases in the number of visitors (specifically the general public), length of visitor stays, and visitor spending. Increased visitation would increase employment, business sales, and incomes in the tourism industry, as well as government tax revenues. Because of the increase in programs, demonstrations, and opportunities (structured and unstructured), there would be increased tourist operations and services proposed in this alternative for the general public. Management would be delegated by the NPS to a concession or nonprofit organization supporting local concessions and economy. Expansion of visitor services, if financially viable, would include a bookstore, tours, mule rides, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging. Visitor spending would be maximized in this alternative due to the wider range of visitor opportunities, including potential expansion of overnighting in the historical park. Access would also be allowed on specific days for special events for those who have preexisting connections to the park. Allowing larger planes with a limit of 20 passengers to use the Kalaupapa airport would be considered, meaning more visitors on the island of Molokai and visitor spending to the influence areas. The restrictions being would have a beneficial impact to the park and commercial services to provide for visitors affecting the economic environment. This visitation would cause business sales, employment, incomes, and government tax revenues to rise.

Taken as a whole, the levels of visitation, partnerships, and park operations in alternative D would increase economic activity at Kalaupapa and Molokai. State expenditures would decrease and federal expenditures would rise; this would have little effect on the total influence area’s economy.

Impacts on Social Characteristics

Alternative A

The no-action alternative would continue existing trends in social character at the national historical park and the island. The current social environment of Kalaupapa and Molokai ensures that the remaining patients are able to live in a well-maintained community and that their lifestyle and privacy is respected. The restrictions on the types and levels of visitation in the park are also designed to maintain the character of the Kalaupapa community. NPS would continue to maintain the social environment in the short term, not affecting Kalaupapa’s residents, the DOH, or the character of Kalaupapa.

Alternative B

Alternative B proposes emphasis on cultural, historical, and natural preservation and stabilization of historic features. Preparation of a National Register of Historic Places nomination for Kalaupapa’s archeological resources and exploration of a World Heritage Site designation are both potential designations that could benefit the preservation of the historic character. Adaptive re-use would also be implemented for visitor facilities, partner uses, and park operations. Museum collection items would be exhibited in historic structures and identification of offsite repositories to house other collections would provide offsite visitor education of collections and research. The result of these proposals would have a beneficial impact to the social character of the influence area, because the historic and cultural components of Kalaupapa would be preserved. Short-term, increased historic preservation activities to rehabilitate and preserve historic and cultural resources could affect the spiritual quality of Kalaupapa negatively. Long-term, construction activities would result in improvements to the structures and landscape in protecting, maintaining, and enhancing the quality of social and historic character of Kalaupapa.

The most significant changes to the social character of Kalaupapa and the influence area under this alternative could be the addition of nonprofit or concession-run visitor services and visitors using those services. Overnight visitation by the general public has always been prohibited, and this change could negatively impact the social character of the Kalaupapa. For the island, increases in the number of visitors and length of visitor stays would have minor changes to the social character of Molokai.

The following actions would maintain visitation, length of visitor stays, and visitor spending. The park would continue to prohibit sea access for visitors by ferry service or boat in the ¼ mile boundary of the park, unless a special use permit is obtained. Onsite interpretation and use of organized tours to experience Kalaupapa, restrictions on age and limits of recreational and overnight use would be maintained as in current management practices. These actions would have no effect on the social character of Kalaupapa in comparison to alternative A.

Alternative C

Same as alternative B except that alternative C proposes hands-on emphasis on cultural, historical, and natural preservation and stabilization of historic features. Additionally, a creative way to have visitors interact with the museum collections is a component of this alternative, such as an artist-in-residence program that is inspired by collections which would preserve the social character of the site. Changes in visitation in this alternative such as allowing children under the age of 16 to visit, potential expanded overnight use opportunities, and allowing unescorted access to visitors in the engagement zones would likely change the social characteristics of Kalaupapa.

Alternative D

Same as alternative B except alternative D proposes demonstrations to explain cultural, historical, and natural preservation and stabilization of historic features.

Cumulative Impacts

Impacts of ongoing cooperative agreements with the Department of Land and Natural Resources (DLNR), Department of Transportation (DOT), Department of Hawaiian Home Lands (DHHL), and churches would maintain existing economic benefits to the influence area; because these are the mechanisms through which the NPS is able to operate the park.

The departure of the Department of Health (DOH) and the patient community will have an effect on the population, demographics, economic, and social character of Kalaupapa. In 1984, the Hawai’i DOH and the NPS entered into a cooperative agreement which specified that the health department would continue health care programs while NPS would operate, preserve, and protect the park (NPS 1984). Operationally, this meant that NPS would eventually maintain

and operate all community facilities. As the patient population declines, the state health department personnel also decrease accordingly. With this, NPS operations, management, and spending are expected to grow as NPS assumes responsibility for more facilities that are currently operated and maintained by the state. The most significant and expected impact to socioeconomics in the local area is the passing of the patient community and resulting departure of DOH. Presently, the patient community constitutes more than a dozen of 113 individuals in the Kalaupapa community, and several of those individuals live outside Kalaupapa or are intermittently residing at Leahi Hospital in Honolulu. DOH staff constitutes approximately 42 individuals and 54 individuals are NPS staff. Patterns and trends on the island of Molokai include population and demographic changes with the presence of the DOH and patient community no longer existent in Kalaupapa. Molokai population estimates are fairly consistent and with the decrease in this community, the overall population will see decreases. The loss of the patient community is a change from a living community to a historical community for Kalaupapa NHP.

Impacts of implementation of all alternatives, in combination with the beneficial effects on the island described above would result in beneficial cumulative impacts on the island’s social and economic environment.

Conclusion

Alternative A would continue to have beneficial impacts on the island’s socioeconomic environment in the short- and long-term. In the short term alternatives B, C, and D would remain the same as alternative A. The cumulative impacts of all the alternatives would have beneficial impacts on the island’s socioeconomic environment.

Unavoidable Adverse Impacts

Unavoidable adverse impacts are defined as moderate to major impacts that cannot be fully mitigated or avoided.

Alternative A

Under the no-action alternative, there would be major adverse impacts on historic structures because many of the buildings would be underutilized or not undergo rehabilitation. Under this alternative, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.

Alternative B

There would be little to no unavoidable adverse impacts on cultural resources because the NPS would strive to preserve and adaptively use buildings, structures and landscape features that are eligible for or listed on the National Register of Historic Places.

Under alternative B, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.

Alternative C

There would be little to no unavoidable adverse impacts on cultural resources because the NPS would strive to preserve and adaptively use buildings, structures and landscape features that are eligible for or listed on the National Register of Historic Places.

Under alternative C, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.

Alternative D

There would be little to no unavoidable adverse impacts on cultural resources because the NPS would strive to preserve and adaptively use buildings, structures, and landscape features that are eligible for or listed on the National Register of Historic Places.

Under alternative D, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.



Volunteers removing invasive vegetation and planting native seedlings. NPS photo.

Relationship between Local Short-term Uses and Long-term Productivity

Alternative A

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used by the public. Under all the alternatives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under the no-action alternative, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport, and lighthouse) would remain.

Alternative B

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used be the public. Under all the alternatives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under alternative B, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport, and lighthouse) would remain.

Alternative C

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used be the public. Under all the alterna-

Relationship between Local Short-term Uses and Long-term Productivity

tives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under alternative C, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport and lighthouse) would remain.

Alternative D

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used be the public. Under all the alternatives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under alternative D, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport, and lighthouse) would remain.

Irreversible or Irretrievable Commitments of Resources

Alternative A

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of the no-action alternative that would result in the consumption of nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.

Alternative B

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of alternative B that would result in the consumption of nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.

Alternative C

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of alternative C that would result in the consumption of

nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.

Alternative D

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of alternative D that would result in the consumption of nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.





Kanaana Hou Church, 1907. Photo courtesy of Hawai‘i State Archives.

Public involvement and consultation efforts were ongoing throughout the process of preparing this draft general management plan/environmental impact statement (GMP/EIS). Public involvement methods included Federal Register notices, news releases, public meetings and workshops, invited presentations at partner and special interest group meetings, discussions at Kalaupapa NHP Advisory Commission meetings, newsletter mailings, and website posting. This chapter provides information about each public involvement period and summarizes public comments received by the NPS during each phase.



Public meeting announcement on community board outside Paschoal Hall. NPS photo.

Public Scoping

Prior to the formal scoping period, the planning team met with numerous agencies, organizations, and individuals to provide an overview of the planning process and to answer questions and listen to concerns.

Formal public scoping for the development of Kalaupapa National Historical Park’s general management plan occurred between March 11, 2009 and July 15, 2009. The National Park Service (NPS) announced the public scoping period and invited public comment through newsletters, correspondence, press releases, public workshops, informal meetings, NPS websites, and a *Federal Register* notice. NPS staff produced and mailed Newsletter #1: Public Scoping to approximately 800 individuals and entities on the NPS’s mailing list. Agencies, organizations, governmental representatives, and native Hawaiian groups were sent letters of invitation to attend the public workshops or individual meetings. Press releases were distributed to local and regional news media.

The project was launched on the NPS Planning, Environment, and Public Comment (PEPC) website, <http://parkplanning.nps.gov/kala>, which provided information about Kalaupapa NHP’s GMP and an online method for public comments. A Notice of Intent to prepare a general management plan and environmental impact statement for Kalaupapa NHP was published in the Federal Register on March 11, 2009 (Vol. 74, No. 46, pp. 10611-10612) and in the State of Hawai‘i Office of Environmental Quality Control’s “The Environmental Notice” on March 23, 2009. The public was invited to submit comments by regular mail, e-mail, fax, online, and at public workshops.

Public Workshops and Written Comments

The NPS held 12 public workshops on the islands of Molokai, O‘ahu, Maui, Kaua‘i, and Hawai‘i in April and May of 2009 to provide an opportunity for the public to learn about the general management planning project and to offer comments. Nearly 400 people attended the public workshops and provided comments, and the NPS received 65 written responses. After the meetings, the notes were posted at <http://parkplanning.nps.gov/kala> and analyzed.

Table 6.5 Public Workshops and Attendance

Location	Date	Attendance
Kalaupapa, Molokai: McVeigh Social Hall	April 20, 2009	27
Kalaupapa, Molokai McVeigh Social Hall	April 21, 2009	27
Kahului, Maui Maui Arts and Cultural Center	April 22, 2009, AM	25
Kahului, Maui Maui Arts and Cultural Center	April 22, 2009, PM	21
Honolulu, O‘ahu Bishop Museum	April 23, 2009	82
Honolulu, O‘ahu Bishop Museum	April 24, 2009	64
Kapa‘a, Kaua‘i Kapa‘a Public Library	April 27, 2009	14
Waimea, Kaua‘ West Kaua‘i Technology and Visitor Center	April 28, 2009	10
Kaunakakai, Molokai Mitchell Pauole Center	April 29, 2009, AM	51
Kaunakakai, Molokai Mitchell Pauole Center	April 29, 2009, PM	40
Kailua-Kona, Hawai‘i Kona Outdoor Circle	May 26, 2009	4
Hilo, Hawai‘i Mokupāpapa Discover Center	May 27, 2009	16
Total		381

Comments, both through public workshops or written correspondence, were received from the following organizations, affiliates, and elected officials:

Aka‘ula School
Arizona Memorial Museum Association
Blessed Damien Catholic Parish
County of Maui
County of Maui Planning Department
Damien/Marianne Commission
Danny Mateo, Council Chair, County of Maui
Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources
Department of Transportation
Division of Forestry and Wildlife
Hale Mōhalu Hospital
Hawai‘i Conference United Church of Christ
Historic Hawai‘i Foundation
Hui Ho‘opakele Aina
Hui Kako‘o ‘Aina Ho‘opulapula
Hui Malama I Na Kapuna O Hawai‘i Nei
International Association for Integration, Dignity and Economic Advancement
Ka ‘Ohana O Kalaupapa
Kaahumanu Society
Kaua‘i Community College
Ke Kula Niihau O Kekaha
KMKK Radio
Kuha‘o Business Center
Malu ‘Aina
Maui Historical Society
Maui Tomorrow
Mazie Hirono, Congresswoman, 2nd District
Molokai Community Service Council
Molokai Dispatch
Kalaupapa Guided Mule Tour
Molokai Police Department
Molokai Visitor Association
Na Ala Hele Hawai‘i Trail and Access Program
Office of Hawaiian Affairs

Peacemaker School
Royal Order of Kamehameha
Shrine and Museum of Blessed Marianne Cope
Sisters of Sacred Hearts
Sisters of St. Francis
Sisters of St. Francis of the Neumann Communities
St. Catherine Church
St. Michael Church
State of Hawai‘i
The Nature Conservancy
U.S. Department of Interior, Office of Inspector General
University of California, Berkeley
University of Hawai‘i, Hilo
Waimea High School
Waiola Church

Summary of Public Scoping Comments

The following description incorporates both the public workshop comments and the written comments received by the NPS through July 15, 2009. All comments received have been reviewed and were considered for the preparation of this GMP/EIS.

Respect for Kalaupapa’s People and Culture

Most public comments emphasized the need to mālama i ka‘āina in a manner that shows respect for the peninsula’s people, stories, and way of life. This includes not only recent or living residents with Hansen’s disease, but also the thousands who lived and died here in earlier times. The presence of these ancestors, combined with the patients’ faith and aloha despite terrible suffering, makes Kalaupapa an especially sacred place.

A key issue identified by patients, families, and the general public is the need to tell patients’ stories in their own words, and to move quickly to preserve their oral histories. Another major concern was whether future management of the park would lessen opportunities for the ‘ohana and friends to visit for gather-

ings, genealogical research, or to tend the graves of their ancestors. Several commenters suggested an important role for ‘ohana could be serving as interpreters.

Visitor Regulation and Access

The vast majority of the public cited the need to control visitor access in order to preserve the culture and environment of Kalaupapa.

Most believed that ‘ohana should have priority over general visitor access. There were concerns that tourism pressure would crowd out families unless preferential access is established. Native Hawaiian access was also addressed, and many suggested that the NPS work closely with Kalaupapa residents and Molokai native Hawaiian groups to develop a plan that allows for subsistence practices and other traditional cultural activities, while still protecting resources.



GMP public scoping meeting, April 2009. NPS photo.

Another important issue was the current policy prohibiting children under the age of 16. Opinions were evenly divided between those who support relaxing or retaining this restriction.

Many also held opinions about whether or not overnight stays should be allowed. Overall, the comments acknowledged that while a day visit may feel uncomfortably short, too many overnight visitors might encourage an inappropriate level of tourism.

The majority stressed that general visitors should be escorted by a trained guide and that escorts should have a strong personal connection to the Kalaupapa patient community and Hawaiian culture.

Several people identified specific locations which they thought should be subject to special access rules due to the sensitivity of resources, cultural concerns, or safety.

Care and Use of Kalaupapa’s Buildings and Landscape

The public emphasized that caring for Kalaupapa’s historic structures, cemeteries, and planted areas is necessary to “Keep Kalaupapa Kalaupapa.” Many urged the selective preservation, restoration, or re-use of specific sites or structures.

Respectful preservation of patient homes was a matter of top concern for the public, as is the care of graves and cemeteries. Commenters also discussed the need to preserve churches (while keeping them open for service), and to preserve or re-use other gathering places, group homes, and additional community sites.

Several people emphasized that planted areas and hand-built landscape features created by patients are important elements to preserve and restore.

Hawaiian archeological sites at Kalaupapa were also listed as significant, including heiau, rock walls, and the crater hōlua slide.

Visitor Experience

When asked about their ideal visitor experience in the historical park, public respondents urged the NPS to preserve qualities they value most about Kalaupapa: the spirit of the people and their stories, the sacred mana and spirituality, the pristine landscape, the historic surroundings, and the peace, quiet, and solitude.

Many said they would like Kalaupapa to evoke a feeling of “living history,” though opinions were mixed about how best to achieve this. Some emphasized the need for daily activity, such as people tending gardens or actually living in the community, while others preferred a quieter atmosphere. Several suggested that visitors experience the same regulations that patients endured, and many supported the idea of a “walking museum,” with restored structures and sites accessible through guided tours. The public consistently emphasized that Kalaupapa should not be managed as a typical “tourist” destination or recreation area, but rather as a place for education, reflection, and spiritual experience or religious pilgrimage. Most who commented on recreational concerns said that recreational uses such as camping and beach and ocean activities should be prohibited.

Interpretation and Education

Public comments revealed a substantial desire for increased outreach by the NPS, as well as a more comprehensive interpretive approach that conveys Kalaupapa’s story with balance, dignity, and respect.

Commenters offered many concrete suggestions for NPS education and interpretation, including the establishment of an orientation venue and the use of multimedia exhibits featuring audio, visual, and written histories, household furnishings, and patient inventions.

A greater interpretive focus on Kalaupapa’s pre-settlement Hawaiian residents and their displacement was requested, as was a more balanced approach to the interpretation of the Hansen’s disease settlement. Most believed that telling the story of the patients is the primary purpose of the historical park, and should be the focus of its interpretation. While recognizing that Saint Damien is an important religious figure, commenters noted that other significant individuals and churches ministered to the patients at Kalaupapa, and that these people and groups should also be acknowledged.

Commercial Activity, Development, and Facilities

Concerns were voiced that increased tourism and a declining patient population will encourage commercial activities and new building projects at Kalaupapa. Many stressed that no new facilities should be added at Kalaupapa, recommending instead that existing buildings be adapted—with as little visual change as possible—for those improvements that are absolutely necessary.

Some suggested particular facilities that would improve the historical park. Examples included a visitor center, additional restrooms, small supply stores, eco-friendly food services, overnight facilities, commercial services to support staff, and a health clinic. Several proposed retaining existing concessions and amenities such as the Kalaupapa General Store, the Bar, and Damien Tours.

Natural Resources

Many commented on the need to protect Kalaupapa’s flora, fauna, and marine life, noting that enforcement of the marine boundaries is needed to prevent poaching and protect marine conditions from degradation. Several suggested official designation of the historical park’s ocean area as a protected area.

Most of the specific comments about natural resources recommended allowing but regulating subsistence activities. Another concern was overgrown invasive vegetation, which crowds out native plants and covers landscape features such as graves and rock walls. Several urged for more active management of deer and

pig populations. Opinions varied as to whether the goal should be control or eradication and whether hunting should be allowed.

Operations

Public comments on operational issues addressed entrance fees, health and safety, staffing, maintenance, sustainability, employee housing, funding needs, enforcement activity, and vehicle use.

Most individuals thought there should not be an entrance fee, or that it should be reduced or waived for Kalaupapa ‘ohana, Molokai residents, or kama‘āina.

Health and safety concerns focused specifically on a lack of medical care in the historical park once the Department of Health (DOH) leaves the peninsula. Most thought the NPS should establish its own clinic and emergency resources; others suggested requiring a liability waiver form for visitors. Another safety/health concern was the condition of the trail from topside to Kalaupapa.

Many comments were received about employee recruitment, hiring, and training. The public felt strongly that people with a relevant cultural heritage, such as Kalaupapa ‘ohana, native Hawaiians, or Molokai and Hawai‘i residents with local roots, should receive hiring preference. People stressed that staff should be trained in Kalaupapa’s history and culture in order to tell stories in an appropriate way and pronounce Hawaiian words correctly, and that at least some employees should speak fluent Hawaiian.

Establishing an enforced “take out what you bring in” policy was a proposed approach to reducing litter problems on the peninsula, especially with the anticipated closure of the Kalaupapa landfill. Many noted that sustainability and self-sufficiency should be priorities, and suggested the establishment of a recycling center, the creation of farming or vegetable gardening plots, and the development of solar and other green energy options.

Employee housing policies were a concern, with mixed views about whether NPS employees and their families should be able to live on site.

Law enforcement and security was another topic, and suggestions sought improved enforcement and the hiring of more rangers, especially in anticipation of Saint Damien’s canonization celebration. Others called for stronger action against drug use.

Several addressed the issue of long-term funding for NPS operations. Ideas included establishing a foundation, cultivating additional partnerships, and seeking a guarantee from Congress for ongoing funding.

A few comments addressed vehicle use at Kalaupapa and included an objection to off-road vehicles because of noise, plant damage, and disturbance to the feeling of sacredness. Others said NPS should limit vehicles of all types and prohibit speeding.

Future Land Use and Jurisdiction

The future of the property that NPS currently leases from the Department of Hawaiian Home Lands (DHHL) was a matter of concern. In coming decades, after no living patients remain, decisions will need to be made about use of patient residences. In 2041 the NPS lease with DHHL will expire. Some members of the public suggested allowing native Hawaiian homesteads on the peninsula. Many others are interested in continuing NPS protection of Kalaupapa. Those who commented voiced a range of perspectives on this complex issue.

Another important issue was a modification of the park boundary to include the adjacent north shore cliffs, valleys, and shoreline. The most consistently stated perspective was that the north shore and valleys should be protected from development but managed to accommodate subsistence activities. A few people favored NPS boundary expansion to promote long-term protection and resource management of the areas. A few spoke clearly against any NPS acquisition, fearing that it would prevent local access to resources that are needed for the island’s food security. Several questioned the feasibility of enforcing new boundaries, and/or noted the need to take care of lands that are already in the historical park before expansion is considered. Others emphasized the need to work with the other stakeholders, consult with the patients, and partner with the community.



GMP public scoping meeting, April 2009. NPS photo.

Future county jurisdiction of Kalaupapa after DOH departure was another matter of interest to the public, as was the transition in management from the DOH to the NPS.

Partnerships and Collaboration

The public urged the NPS to increase collaboration and communication with those interested in or affected by the future of the historical park. Several expressed concern that decisions at Kalaupapa, particularly following the canonization of Saint Damien, could have tremendous impact on the Molokai community. They recommended that Kalaupapa and the topside community jointly plan for increased visitation in order to help and not harm the island.

The public proposed new or enhanced partnerships with Pacific Historic Parks, the Patient Advisory Committee, the Molokai Community Service Council, and the Ka ‘Ohana O Kalaupapa organization, which submitted a comprehensive 28-page position paper outlining elements to include in the general management plan. Several members of the public voiced strong support for this paper and urged the NPS to work closely with the organization, particularly on matters of interpretation. Hui Ho‘opakele ‘Aina organization recommended that NPS establish representative task forces to supplement the GMP scoping process and create formal community commissions to participate in longer term decision-making.

The public also offered resources including archeological expertise; historical materials; ethnographic research based on oral history sessions with former patients; and donations of money and volunteer time to help maintain the ‘āina.

Transportation

Most thought that access to Kalaupapa should remain as it is today—by air, mule or on foot. Some desired more efficient, reliable and reasonably-priced transportation to assure that the peninsula can receive supplies, handle emergencies, and offer residents an easier connection with the outside world. Others noted that the difficulty of access is “part of the experience, part of the story, and spirituality of the place.”

Transportation recommendations included a more user-friendly flight schedule, though public sentiment was against noise from aircraft and supported the prohibition of air tours. Several suggested improvements to sea access, such as

a lower-cost ferry or small boats for delivery of supplies between barges. Most comments were against current plans to dredge the harbor to allow for larger barges and against expansion of the pier and docking facilities, in favor of repair and maintenance of the existing pier.

The public also expressed views on usage and maintenance of the trail from topside. In general their comments advocated continued usage by mule rides and hikers, maintenance and restoration of the trail to keep it safe for users, and assurance that those who use the trail are fit enough to do so. A few expressed concern about access to Kalaupapa for people with disabilities. One suggested a gondola from topside to meet this need.

Purpose and Significance

The sentiment of the vast majority of people about the significance of Kalau-papa is captured in Ka ‘Ohana O Kalaupapa’s statement that “the paramount mission of Kalaupapa National Historical Park is to accurately present the people of Kalaupapa and their history while preserving their memory with dignity and sensitivity.” Some people asked that the people of Kalaupapa be honored in a way that better captures the elements of human suffering, courage, spirituality, and love that make the peninsula unique.

Many also suggested that the park’s purpose and significance be broadened to include the native Hawaiian ancestors who preceded the Hansen’s disease settlement, and whose culture informs the values of the community today.

Finally, the public emphasized that Kalaupapa’s significance extends beyond Hawai‘i and the nation and that the historical park should be designated a World Heritage Site. Many noted that Kalaupapa is an international crossroads where relatives of patients can meet, heal, and restore family ties. They also observed that Kaluapapa’s founding set the stage for similar settlements in other countries and led to the growing worldwide awareness of leprosy treatment as an issue of social justice. Today Kalaupapa provides an empowering model of ‘ohana, aloha, and mālama in international efforts to conquer stigma and connect estranged family members.

Preliminary Alternatives Public Review

The preliminary alternatives public process was an additional planning step in the planning process. The primary purpose of involving the public in a review of the preliminary alternatives was to understand the public’s concerns and preferences with regard to the preliminary alternatives and to assist the planning team in refining the preliminary alternatives and selecting a preferred alternative.

The official public process began in May 2011, when the NPS produced and mailed Newsletter #3: Preliminary Alternatives to approximately 1,000 contacts and announced this planning step on the NPS websites. The newsletter fully outlined the concepts and actions in the preliminary alternatives and management zones and provided a schedule of public open houses.. Press releases were prepared and mailed to local media.

The preliminary alternatives presented to the public in Newsletter #3 were:

Alternative A – No-action alternative. The NPS would continue to manage Kalaupapa NHP as it has been currently managed following existing management policies and programs.

Alternative B focuses on Kalaupapa’s special or sacred places celebrated and made legendary by stories. Maintaining Kalaupapa’s spirit and character is the primary focus of this alternative.

Alternative C emphasizes stewardship of Kalaupapa’s lands. Resources would be managed from mauka to makai.

Alternative D focuses on personal connections to Kalaupapa through visitation by the general public.

Public Open Houses and Written Comments

The NPS held seven public open house meetings on Molokai, Maui, and O‘ahu between June 6 and 10, 2011. 164 people participated in the open house meetings and provided oral comments, and the NPS received 60 written responses. After the meetings, the notes s were posted at <http://parkplanning.nps.gov/kala> and analyzed.

Table 6.6 Public Open House Meetings

Location	Date	Attendance
Kalaupapa, Molokai McVeigh Social Hall	June 6, 2011, AM	16
Kalaupapa, Molokai McVeigh Social Hall	June 6, 2011, PM	7
Kaunakakai, Molokai Mitchell Pauole Center	June 7, 2011, AM	21
Kaunakakai, Molokai Mitchell Pauole Center	June 7, 2011, PM	17
Kahului, Maui Maui Arts and Cultural Center	June 8, 2011	19
Honolulu, Oahu Bishop Museum	June 9, 2011	51
Honolulu, Oahu Bishop Museum	June 10, 2011	33
TOTAL		164



Preliminary alternatives public open house. NPS photo.

Comments, both through public workshops or written correspondence, were received from the following organizations, affiliates, and elected officials:

- American Association of Retired Persons
- Bishop Museum
- Commission on Transportation, State of Hawai‘i
- County of Maui Department of Parks and Recreation
- Department of Education
- Department of Hawaiian Home Lands
- Department of Health
- Department of Land and Natural Resources
- Department of the Interior
- Department of Transportation
- Family Life Center Assembly of God
- Hawai‘i Catholic Herald
- Historic Hawai‘i Foundation
- Honolulu Academy of Arts
- Honolulu Community College
- Hui Ho‘opakele ‘Aina
- Iolani Palace
- Ka ‘Ohana O Kalaupapa
- Kalaupapa NHP Advisory Commission
- Kalaupapa Patient Advisory Committee
- Kamehameha School Alumni Association – North West Region
- Kana‘ana Hou Church
- Maui Arts and Cultural Center
- Molokai Dispatch
- Molokai Museum & Cultural Center
- Molokai News
- Molokai Visitor’s Bureau
- Office of Hawaiian Affairs
- Pacific Historic Parks
- Pu‘u O Hoku Ranch
- Senator Daniel Inouye’s Office
- St. Damien Catholic Parish
- State of Hawai‘i
- The Kalaupapa Connection
- The Nature Conservancy

Summary of Public Comments on the Preliminary Alternatives

The comments on the preliminary alternatives covered a broad range of topics, issues, and recommendations for Kalaupapa. The majority of comments received addressed visitor experience, including activities and uses, regulations, and interpretation and education. Resource management, land use and management, and facilities accounted for the second largest number of comments. Fewer comments were split between the additional topic areas discussed below.

Many of the sentiments expressed in the review of alternatives echoed public remarks made during the scoping process. These included general comments about desired visitor access and experience; interpretation; care of buildings, landscapes, and natural resources; commercial activity; operations; land use; partnerships; and significance.

The summary below includes only the new comments that arose during the public review of preliminary alternatives.

Visitor Experience

The majority of commenters believe that visitor experience should focus on learning about Kalaupapa rather than recreational activities.

Camping—While there was some support for organized camping, the overwhelming majority considered camping to be incompatible with the park’s purpose.

Concessions and commercial uses—In general, comments supported limited concession activities at Kalaupapa that provide basic services and goods for visitors.

Gathering, fishing, and hunting—Traditional subsistence activities were supported if managed through regulations (including state laws), monitoring, and a permit system.

Homesteading—A small number of comments addressed homesteading: some supported traditional agricultural practices in Waikolu Valley and others argued

that homesteading is inconsistent with the desire to maintain the sacred character of Kalaupapa.

Overnight use—The majority of people who commented on overnight use advocated for overnight accommodations by reservation, using mainly the existing facilities. Many commenters felt that those who stay overnight should participate in a service project at Kalaupapa.

Orientation and research—Commenters generally felt that all visitors should participate in a required orientation before their visit, whether in a topside or Kalaupapa venue. Many supported research with a preservation focus and opportunities for coordinated natural resource, cultural resource, and ethnographic research.

Spiritual retreats and pilgrimages—Some suggested developing retreat centers at Kalaupapa, possibly in partnership with existing churches at the Bishop Home. A topside Molokai retreat center was suggested for those who cannot visit Kalaupapa.

Age limit—The majority of commenters supported allowing children younger than 16 years old to visit Kalaupapa, because education is considered the primary mission of Kalaupapa NHP. Some commenters thought the age limit could be lowered to either age 10 or 12. Most felt that if children were allowed to visit Kalaupapa they should be accompanied by an adult.

Interpretation and Education

Many comments addressed interpretation and education, the majority encouraging an increase in education and interpretation opportunities both on- and off-site.

Curriculum-based education—Comments regarding curriculum-based education supported partnering with educational institutions to develop curriculum about Kalaupapa for schools in Hawai‘i.

Outreach—Outreach was supported by commenters, whose suggestions ranged from the need for offsite outreach to creating an outreach program to develop financial support for Kalaupapa.

Resource Management

The most common comments on resources discussed the need for preservation.

In general, the majority of comments addressing archeological resources, museum collections, cultural landscapes, and structures were focused on the need for continued and enhanced stabilization, preservation, and conservation. Continued research and documentation are needed for archeological resources.

The public supported adaptive re-use of historic buildings and the maintenance of gravestones. Specific remarks addressed the need to preserve the churches of Kalaupapa.

Comments submitted regarding the Hansen’s disease community focused on the people and keeping their stories alive. In the short term, patients’ opinions should take priority, and in the long term the lifestyle and stories of the patients should be reflected throughout Kalaupapa. Continued research on families that were removed from the peninsula prior to the establishment of the settlement is needed.

Comments on native Hawaiian traditions included granting access to native Hawaiians, allowing subsistence hunting and gathering, and ensuring that the native Hawaiian story is documented and told.

Public comments supported preservation of terrestrial and marine resources and management of invasive species. Control of nonnative species, particularly axis deer, was a concern, and additional support was expressed for continued natural resource research and monitoring activities.

Comments on marine resources support a marine management area designation for Kalaupapa and focused on the need to work cooperatively with the State of Hawai‘i and partners to establish new regulations for resource protection that would continue the will of the Patient’s Council. The protection of the Hawaiian monk seal and other threatened and endangered species was also requested in the comments.

Land Use and Management

Comments were received both in support of the National Park Service’s continued management of Kalaupapa and in support of the State of Hawai’i as primary manager.

Many supported updating current national designations, such as the National Historic Landmark and National Natural Landmark documentation, as well as proposing new designations such as a marine management area or sanctuary.

Boundary modifications were supported by some commenters, particularly in the North Shore Cliffs area. Many commenters in favor of boundary modifications expressed that adequate funding and staffing would need to be available to support the inclusion of additional lands. Other commenters were opposed to any changes to the existing boundaries. Some comments reflected the desire to have the land managed in the traditional ahupua’a fashion.

Only a handful of comments were received on the topic of Kalawao County. People had differing opinions about whether to keep Kalawao County as is or incorporate it into Maui County.

Facilities

Concerns for the facilities included the need for a facility maintenance and management plan, as well as long-term infrastructure and utility needs. A variety of uses for the buildings were proposed in the comments. Examples included education and conference centers, medical facilities, a retreat center at Bishop Home, new bathrooms at the Pavilion, and museums.

Planning Process

Commenters were offered the chance to reflect on the general management planning process including the open house meeting format, earlier public meetings, and project newsletters. Many liked the open dialogue that could be had at the stations in the open house meetings. Those who disliked the open house format wanted to be able to hear everyone’s comments in a hearing style meeting. Other commenters appreciated the effort that the NPS has put into the meetings and the information that has been shared through the newsletters.

Alternatives

In general, those who commented on the preliminary alternatives felt that the range of alternatives covered the most important issues facing Kalaupapa. Of the approximately 1,400 comments received, less than 10% of commenters expressed a preference for an alternative concept or a combination of particular alternatives. Of the four alternatives presented, B and C received the highest level of support; however, many commenters expressed a desire for an alternative that would combine elements of all the alternatives presented. Additionally, all of the alternatives received opposition comments.

Preliminary Alternative A (No-action)

Several commenters chose alternative A as their preferred alternative, supporting existing management of Kalaupapa’s resources and expressing the desire to keep Kalaupapa “as-is.” Many supporters of alternative A also favored components of alternative B.

Preliminary Alternative B

Supporters of alternative B approved of the management focus on sensitive resources, the preservation of the sacredness of Kalaupapa, and the minimal change to existing conditions and visitor use. Many supporters of alternative B also liked components of alternative C. Commenters who did not support alternative B felt that it was too restrictive, arguing that limiting visitor access would have an adverse effect on funding and the maintenance of the park’s historic features.

Preliminary Alternative C

Commenters who preferred alternative C believe it is a good balance between management of resources and visitor access. Supporters liked the stewardship-focused activities as well as the interpretation and educational opportunities. They also expressed interest in incorporating components from the other alternatives. Some commenters were wary of unescorted visitor access and did not like that camping is allowed in this alternative.

Preliminary Alternative D

Several commenters chose alternative D because it maximizes public use and allows for a wider audience to engage in educational opportunities. People who didn’t support alternative D argued that it allows too much access to the general public.



GMP planning team field discussion. NPS photo.

Department of Hawaiian Home Lands Beneficiary Consultation

The Department of Hawaiian Home Lands led a beneficiary consultation on the topic of Kalaupapa NHP and the range of management alternatives in June and July 2011. DHHL invited beneficiaries and NPS representatives to participate in a meeting on June 29, 2011. Thirty-one individuals, including DHHL staff and beneficiaries, attended the meeting. Topics discussed during the meeting included homesteading; land management and lease; boundaries; Pālā‘au State Park; natural and cultural resources; native Hawaiian involvement and representation; gathering and access rights; visitor experience; education and interpretation; and the future of Kalawao County. Full meeting notes can be found on the DHHL website: www.hawaiianhomelands.org.

Agency Consultation and Coordination

The following sections document the consultation and coordination efforts undertaken by the NPS during the preparation of this Draft GMP/EIS. Consultation is an ongoing effort throughout the entire process of developing the Final GMP/EIS. Copies of letters exchanged with partners and agencies are in the administrative file.

Throughout the comment period, presentations, meetings, and conversations with partner agencies and entities were conducted by the Superintendent, park staff, and members of the planning team to discuss the preliminary alternatives. They included the Department of Health, Department of Land and Natural Resources, the Department of Hawaiian Home Lands, Department of Transportation, and the Kalaupapa NHP Advisory Commission. These meetings were held to ensure that the partner agencies concurred with the range of alternatives and potential actions within each alternative.

Consultation and Coordination with Agencies, Organizations, and Groups

The Federal Land Policy Management Act, Title II, Section 202, provides guidance for coordinating planning efforts with other federal departments, and agencies of the state and local governments. All local governments and federal and state agencies with resource management responsibilities or interest in the planning area were informed of the planning effort and encouraged to participate.

Throughout the planning process, presentations, meetings, and conversations with State of Hawai’i partner agencies and entities were conducted by the Superintendent, park staff, and members of the planning team to discuss the planning issues, preliminary alternatives, and preferred alternative. Agencies included the Department of Health, Department of Land and Natural Resources, the Department of Hawaiian Home Lands, Department of Transportation, and the Kalaupapa NHP Advisory Commission. These meetings were held to ensure that the partner agencies concurred with the potential actions, range of alternatives, and preferred alternative.

*Consultation with the State of Hawai‘i
Historic Preservation Officer and the
Advisory Council on Historic Preservation*

The State of Hawai‘i Historic Preservation Officer must be consulted concerning any resource management proposals that might affect a cultural property listed on or eligible for the National Register of Historic Places; several listed properties exist within Kalaupapa NHP. The NPS initiated consultation with the State of Hawai‘i Historic Preservation Division (SHPD) and the Advisory Council for Section 106 of the National Historic Preservation Act, as amended, in April 2009 during the public scoping period. In addition, the NPS communicated with the SHPD and consulting parties and involved the public during the review of the draft alternatives in 2011.

Consultation with the U.S. Fish and Wildlife Service

The Endangered Species Act of 1973 (ESA), as amended, directs every federal agency to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat (50 CFR 400). The ESA authorizes federal agencies to enter into early consultation with the U.S. Fish and Wildlife Service to make those determinations. Formal consultation with the U.S. Fish and Wildlife Service under Section 7b of the ESA was conducted in April 2009.

*Kalaupapa National Historical
Park Advisory Commission*

The Kalaupapa National Park Advisory Commission was briefed and consulted at every major milestone for this GMP. Discussions focused on preserving the history of Kalaupapa, including two time periods: 1) after 1866 when persons with Hansen’s disease were taken to Kalaupapa, and 2) before 1866 which relates to the early native Hawaiian habitation at Kalaupapa. Another concern was aloha ‘aina respecting the land and its spirit. The third primary concern was about desecration and concern about access and safety. Members of the Commission supported controlled access and daily visitation limits. They also agreed that the patients’ well-being is the most important consideration in the decision-making process.

List of Draft GMP/EIS Recipients

Paper copies or executive summaries of the draft GMP/EIS were sent to the following recipients. Additionally, executive summaries were sent to the mailing list of approximately 1,000 individuals and organizations. The draft GMP/EIS is available on the internet at www.nps.gov/kala/parkmgmt/index.htm and upon request.

Federal Entities

- Advisory Council on Historic Preservation
- Federal Aviation Administration
- Kalaupapa Federal Advisory Commission
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Island Regional Office
- National Park Service
- Ala Kahakai National Historic Trail
- Denver Service Center
- Haleakalā National Park
- Hawai‘i Volcanoes National Park
- Kaloko-Honokōhau National Historical Park
- National Park of American Samoa
- Pu‘uhonua O Hōnaunau National Historic Site
- Pu‘ukoholā Heiau National Historic Site
- War in the Pacific National Historical Park
- World War II Valor in the Pacific National Monument
- U.S. Army Corps of Engineers, Regulatory Branch
- U.S. Department of the Interior, Office of Native Hawaiian Relations
- U.S. Department of the Interior, Office of the Inspector General
- U.S. Environmental Protection Agency, Region 9
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- U.S. Natural Resources Conservation Service

Business, Institutions and Organizations

- ‘Aha Kiole
- ‘Ahahui Mālama I Ka Lōkahi
- Aiea Public Library
- Akaku: Maui Community Television
- Aka‘ula School
- Alu Like, Molokai Island Center
- Bishop Museum
- Central Maui Hawaiian Civic Club
- Congregation of the Sacred Hearts of Jesus and Mary
- Conservation Council of Hawai‘i
- Earth justice Legal Defense Fund
- Ewa Beach Public Library
- Hamilton Library
- Hana Public Library
- Hanapepe Public Library
- Hawai‘i Audubon Society
- Hawai‘i Conference United Church of Christ
- Hawai‘i Council for the Humanities
- Hawai‘i Kai Public Library
- Hawai‘i National History Association
- Hawaiian Ecosystems at Risk
- Hawaiian Historical Society
- Hilo Public Library
- Historic Hawai‘i Foundation
- Holualoa Public Library
- Honokaa Public Library
- Hui Malama I Na Kupuna O Hawai‘i Nei
- Hui Malama O Mo‘omomi
- IDEA
- Ilio‘ulaokalani Coalition
- International Federation of Anti-Leprosy Association
- Japanese Cultural Center of Hawai‘i
- Ka ‘Ohana O Kalaupapa
- Kahuku Public Library
- Kahului Public Library
- Kailua Public Library
- Kailua-Kona Public Library

U.S. Senators and Representatives

- Honorable Colleen Hanabusa, U.S. Representative District 1
- Honorable Mazie Hirono, U.S. Senator
- Honorable Tulsi Gabbard, U.S. Representative District 2
- Honorable Brian Schatz, U.S. Senator

State and County Agencies and Officials

- County of Maui
- Councilmember Stephanie “Stacy” Crivello
- Department of Planning
- Parks and Recreation
- Department of Business, Economic Development and Tourism, Coastal Zone Management Program
- Department of Business, Economic Development and Tourism, Land Use Commission
- Department of Hawaiian Home Lands
- Department of Health
- Communicable Disease Division
- Hale Mōhalu Hospital
- Hansen’s Disease Branch
- Department of Land and Natural Resources
- State Historic Preservation Division
- Division of Forestry and Wildlife
- Land Division
- State Parks Division
- Division of Aquatic Resources
- Department of Transportation, Airports Division
- Governor Neil Abercrombie
- Hawai‘i State Library
- Molokai Planning Commission
- Molokai Public Library
- National Area Reserve Commission
- Office of Environmental Quality Control
- Representative Mele Carroll
- Senator J. Kalani English

Kaimuki Public Library
Kalaupapa Patient Advisory Council
Kalihi-Palama Public Library
Kana’ana Hou and Siloama Church
Kaneohe Public Library
Kapaa Public Library
Kapolei Public Library
Keaau Public Library
Kealakekua Public Library
Kihei Public Library
Koloa Public Library, Koloa, HI
Lahaina Public Library
Lāna‘i Public Library
Laupahoehoe Public Library
LBPH Public Library
Leprosy Mission Canada
Līhu‘e Public Library
Liliha Public Library
Manoa Public Library
Maui County Farm Bureau
Maui Electric Company Ltd
Maui Invasive Species Committee
Maui Nui Botanical Gardens
Meyer, Ranch, R.W. Meyer, Limited
Mililani Public Library
Molokai Dispatch
Molokai Irrigation District
Molokai Island Burial Council
Kalaupapa Guided Mule Tour
Molokai Museum and Cultural Center
Molokai Public Library
Molokai Ranch
Mormon Church
Mountain View Public Library
Na Kupuna O Maui
Naalehu Public Library
National Parks Conservation Association
National Parks Foundation
National Trust for Historic Preservation, Western Office

Native Hawaiian Plant Society
Natural Resources Defense Council
Nippon Foundation
Office of Hawaiian Affairs
Office of Hawaiian Affairs Molokai Branch
Pacific Historic Parks
Pahala Public Library
Pāhoa Public Library
Pearl City Public Library
Princeville Public Library
Pu‘u O Hoku Ranch
Roman Catholic Church, Diocese of Honolulu
Salt Lake Public Library
Shrine and Museum of Blessed Marianne Cope, Sisters of Saint Francis Motherhouse
Sierra Club, Maui Group
Society for Hawaiian Archaeology
Soto Mission of Hawai‘i
St. Francis and St. Philomena Catholic Church
St. Francis Healthcare Foundation of Hawai‘i
The Conservation Fund
The Nature Conservancy of Hawai‘i
The Nature Conservancy–Molokai Office
The Wilderness Society
Thelma Parker Public Library
University of Hawai‘i
University of Hawai‘i, Department of Anthropology
University of Hawai‘i, Historic Preservation Program, Department of American Studies
Wahiawa Public Library
Waialua Public Library
Waianae Public Library
Waikiki-Kapahulu Public Library
Wailuku Public Library
Waimanalo Public Library
Waimea Public Library





View of the North Shore cliffs and islets from the Kalaupapa peninsula. NPS photo.

Selected Bibliography

Ainley, D. G., T. C. Telfer, and M. H. Reynolds
1997 “Townsend’s and Newell’s Shearwater (*Puffinus auricularis*).” In *The Birds of North America*, No. 297, edited by A. Poole and F. Gill 1–20. Washington, D.C. and Philadelphia, PA: The Academy of Natural Sciences and The American Ornithologists’ Union.

Alexander, W. D.
1888. Letter to L. A. Thurston, Minister of the Interior, January 9, 1888 regarding the Hawaiian Government Survey and unassigned lands. On file. State of Hawai‘i Archives. Incoming Interior Department Land Letters.

Ali, R.
2004 “The Effect of Introduced Herbivores on Vegetation in the Andaman Islands.” *Current Science* 86(8): 1103–1112.

Allombert, S., S. Stockton, and J. Martin
2005 “A Natural Experiment on the Impact of Overabundant Deer on Forest Invertebrates.” *Conservation Biology* 19: 1917–29.

Asherman K. E., J. M. Crumme, and J. Q. C. Lau.
1990 “A Botanical Reconnaissance of Kalaupapa National Historical Park, November 27–December 5 1989.” Unpublished report.

Athens, J. Stephen
1989 *Archaeological Reconnaissance: Airport Improvement Project, Kalaupapa, Moloka‘i*. Honolulu, HI: International Archaeological Research Institute.

Atkinson, C. T., J. K. Lease, R. J. Dusek, and M. D. Samuel.
2005 “Prevalence of Pox-Like Lesions and Malaria in Forest Bird Communities on Leeward Mauna Loa Volcano, Hawai‘i.” *The Condor* 107:537–546.

Aucan, J.
2006 “Directional Wave Climatology for the Hawai‘ian Islands from Buoy Data and the Influence of ENSP on Extreme Wave Events from the Wave Model Hindcast.” Paper presented at the 9th International Workshop on Wave Hindcasting and Forecasting, September 24–29, 2006, Victoria, B.C., Canada.

Baker, J. D., A. L. Harting, T. A. Wurth, and T. C. Johanos
2011 “Dramatic Shifts in Hawai‘ian Monk Seal Distribution Predicted from Divergent Regional Trends.” *Marine Mammal Science*, 27(1), 78–93.

Bataille, A., A. A. Cunningham, V. Cedeño, L. Patiño, A. Constantinou, L. D Kramer, and S. J. Goodman
2009 “Natural colonization and adaptation of a mosquito species in Galapagos and its implications for disease threats to endemic wildlife.” *Proceedings of the National Academy of Sciences of the United States of America*, 106(25): 10230–35.

Beets, J., E. Brown, and A. Friedlander
2010 “Inventory of marine vertebrate species and fish-habitat utilization patterns in coastal waters off four National Parks in Hawai‘i.” Pacific Cooperative Studies Unit Technical Report 168. Honolulu, HI: University of Hawai‘i at Mānoa, Department of Botany.

Belt Collins Hawai‘i Ltd.
2008 “Statewide Large-Capacity Inter-Island Ferry.” Draft Environmental Impact Statement. Prepared for State of Hawai‘i Department of Transportation, Harbors Division.

Bishop Museum.
2008 Offshore Islet Project. <<http://www2.bishopmuseum.org/HBS/islets/index.asp?faID=957347526>>.

Brasher, A. M.
1996 “Monitoring the Distribution and Abundance of Native Gobies (‘o‘opu) in Waikolu and Pelekunu Stream on the Island of Moloka‘i.” Cooperative National Park Resources Studies Unit Technical Report 113. Honolulu, HI: University of Hawai‘i at Manoa.

2003 “Impacts of human disturbances on biotic communities in Hawai‘ian streams.” *BioScience* 53(11): 1052–60.

Brown, E., K. Kageyama, and R. Watanuki
2008 “Biological Assessment of Marine Resources in Kalaupapa Harbor, Moloka‘i, Hawai‘i.” Natural Resource Report NPS/MWR/HTLN/NRR—2008/001. Prepared for the National Park Service, Omaha, NE.

Busby, P.E, P. Vitousek, and R. Dirzo
2009 “Prevalence of Tree Regeneration by Sprouting and Seeding Along a Rainfall Gradient in Hawai‘i.” *Biotropica* 41(1): 80–86.

Canfield, J. E.
1990 “Description and Map of the Plant Communities of the Northeast Coastal Spray Zone of Kalaupapa National Historical Park.” Cooperative National Park Resources Studies Unit Technical Report 71. Honolulu, HI: University of Hawai‘i at Manoa.

Cao, Guangxia, Thomas W. Giambelluca, Duane E. Stevens, and Thomas A. Schroeder
2007 “Inversion Variability in the Hawai‘ian Trade Wind Regime.” *Journal of Climate* 20 (7): 1145–60.

Cerny, Jennifer
2001 *Social Value: An Essential Step Toward Cultural Landscape Understanding*. M.A. thesis, James Cook University, Townsville, Australia.

Chu, P. S., Y. R. Chen, and T. A. Schroeder
2010 “Changes in Precipitation Extremes in the Hawai‘ian Islands in a Warming Climate.” *Journal of Climate* 23 (18): 4881–4900.

Church, John A. and Neil J. White
2011 “Sea-Level Rise from the Late 19th to the Early 21st Century.” *Surveys in Geophysics* 32(4–5): 585–602.

Clague, D. A., C. Dao-Gong, R. Murnane, M. H. Beeson, M. A. Lanphere, G. B. Dalrymple, W. Friesen, and R. T. Holcomb
1982 “Age and Petrology of the Kalaupapa Basalt, Molokai, Hawai‘i.” *Pacific Science* 36(4): 411–20.

Codiga, Douglas A.
2008 “Act 234: Hawai‘i’s climate change law.” *Hawai‘i Bar Journal* 12(5): 4–15.

Cooke, George P.
1949 Moolelo o Molokai, a ranch story of Molokai. Honolulu, HI: Honolulu Star-Bulletin.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe
1979 “Classification of wetlands and deepwater habitats of the United States.” Prepared for the U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. (Version 04DEC98).

Cronin, Gloria L. and Harriet Ne
1992 *Tales of Molokai: The Voice of Harriet Ne. Lā‘ie, HI: Institute for Polynesian Studies*.

Curtis, D. B.
1991 Historic Pali Trails of Kalaupapa National Historical Park. Honolulu, HI: National Park Service, U.S. Department of the Interior.

D’Antonio, C. M. and P. M. Vitousek
1992 “Biological invasions by exotic grasses, the grass/fire cycle, and global change.” *Annual Review of Ecology and Systematics*, 23: 63–87.

Daws, Gavan
1973 *Holy Man, Father Damien of Molokai*. Honolulu, HI: University of Hawai‘i Press.

Day, R. H. and B. A. Cooper
2002 “Petrel and Shearwater surveys near Kalaupapa, Moloka‘i Island, June 2002.” Final Report, prepared by ABR, Inc.—Environmental Research & Services. Fairbanks, AK.

Devick, W. S., J. M. Fitzsimons and R. T. Nishimoto
1995 “Threatened fishes of the world: *Lentipes concolor* Gill, 1860 (Gobiidae).” *Environmental Biology of Fishes* 44: 325–26.

Diong, C. H.
1982 “Population biology and management of the feral pig (*Sus scrofa* L.) in Kipahulu Valley, Maui.” Ph.D. diss. University of Hawai‘i, Honolulu, HI.

Dodd, C. K. Jr., G. E. Drewry, R. M. Nowak, J. M. Sheppard, and J. D. Williams
1985 “Endangered and threatened wildlife and plants; review of vertebrate wildlife.” *Federal Register* 50:37957–67.

Donachie, S. P., R. A. Kinzie III, R. R. Bidigare, D. W. Sadler, and D. M. Karl
1999 “Lake Kauhakō, Moloka‘i, Hawai‘i: biological and chemical aspects of a morpho-ectogenic meromictic lake.” *Aquatic Microbial Ecology* 19: 93–103.

Duvall, F.
2000 “Report on 2-day biological survey Huelo Islet: Vertebrates.” Draft report prepared for the Department of Land and Natural Resources, Kahului, Maui, HI.

Eichenlaub, B.
2001 “Introduction to the Kalaupapa Marine Environment. <<http://www.nps.gov/kala/naturescience/upload/kalamarine.PDF>>.

Englebert, Omer
1962 The Hero of Molokai: Father Damien, Apostle of the Lepers. Boston, MA: St. Paul Editions.

Evenhuis, N. L. and L. G. Eldredge, eds.
1999 “Records of the Hawai‘i Biological Survey for 1998: Part 2: Notes.” *Bishop Museum Occasional Papers* 59: 1–55.

Firing, Yvonne L. and Mark A. Merrifield
2004 “Extreme sea level events at Hawai‘i: Influence of meso-scale eddies.” *Geophysical Research Letters* 31(24): L24306, doi:10.1029/2004GL021539.

Fitzsimons, J. M., R. M. Zink, and R. T. Nishimoto
1990 “Genetic variation in the Hawai‘ian Stream Goby, *Lentipes concolor*.” *Biochemical Systematics and Ecology* 18(1): 81–83.

Flexner, James L.
2010 “Archeology of the Recent Past at Kalawao: Landscape, Place, and Power in a Hawai‘ian Hansen’s Disease Settlement.” Ph.D. diss., University of California, Berkeley.

Foote, D. E., E. L. Hill, S. Nakamura, and F. Stephens
1972 “Soil Survey of the Islands of Kaua‘i, O‘ahu, Maui, Moloka‘i, and Lana‘i, State of Hawai‘i.” Report prepared for U.S. Department of Agriculture, Soil Conservation Service.

Fornander, Abraham.
1916–17 “Hawai‘ian Antiquities and folk-lore.” Bishop Museum Memoirs 4, Honolulu, HI.

Frasher, H. R., V. Parker-Geisman, and G. R. Parish
2007 “Hawai‘ian Hoary Bat Inventory in National Parks on the Islands of Hawai‘i, Maui, and Moloka‘i.” Pacific Cooperative Studies Unit Technical Report 140. Honolulu, HI: University of Hawai‘i at Manoa.

Friedlander, A., G. Aeby, R. Brainard, E. Brown, K. Chaston, A. Clark, P. McGowan, T. Montgomery, W. Walsh, I. Williams, and W. Wiltse
2008 “The State of Coral Reef Ecosystems of the Main Hawai‘ian Islands” In *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States*, edited by J. Waddell 219–61. NOAA Technical Memorandum NOS NCCOS 11. Silver Spring, MD: NOAA/NCCOS Center for Coastal Monitoring and Assessment’s Biogeography Team.

Fung Associates Inc. and SWCA Environmental Consultants
2010 “Assessment of Natural Resources and Watershed Conditions for Kalaupapa National Historical Park.” Natural Resource Report NPS/NPRC/WRD/NRR—2010/261. Prepared for the National Park Service, Fort Collins, CO.

Funk, E. J.
1991 “Vegetation Map of Kalaupapa National Historical Park, Moloka‘i, Hawai‘i.” Technical Report 77, Cooperative National Park Resource Studies Unit. Honolulu, HI: University of Hawai‘i at Manoa Department of Botany.

Gagné, W. C. and F. G. Howarth
1982 “Assessment of endangered and threatened status of Hawai‘ian arthropods.” Report to the U.S. Fish and Wildlife Service, Honolulu, HI.

Giambelluca, T. W., H. F. Diaz, and M. S. A. Luke
2008 “Secular temperature changes in Hawai‘i,” *Geophysical Research Letters* 35, L12702.

Gillespie, R. G. and N. Reimer
1993 “The effect of alien predatory ants (Hymenoptera: Formicidae) on Hawai‘ian endemic spiders (Araneae: Tetragnathidae).” *Pacific Science* 47:21–33.

G K & Associates
1991 “Environmental Assessment for Boulder Removal Project, Waihānau Stream, Kalaupapa National Historical Park, Moloka‘i, Hawai‘i.” Prepared for Edward K. Noda and Associates, Inc., Honolulu, HI.

Godwin, S. and H. Bollick
2006 *Inventory of intertidal and shallow subtidal marine invertebrate at Kalaupapa National Historical Park Moloka‘i, Hawai‘i*. The Bishop Museum Contribution No. 2006-003 to the Hawai‘i Biological Survey for the National Park Service, Honolulu, HI.

Goltz, D. M., A. M. Agness, and P. C. Banko
2001 “Axis deer home range, movements, and survival at Kalaupapa, Moloka‘i.” Unpublished Report for the United States Geological Survey, Biological Resources Division (USGS-BRD), Hawai‘i Volcanoes National Park.

Goodwin, C. M.
1994 *A Kalaupapa Sweet Potato Farm: Report on Archaeological Data Recovery Operations, Kalaupapa Airport Improvement Project, Kalaupapa, Moloka‘i, Hawai‘i*. Vol. I and II. Honolulu, HI: International Archaeological Research Institute.

Greene, Linda W.
1985 *Exile in Paradise: The Isolation of Hawai‘i’s Leprosy Victims and Development of Kalaupapa Settlement, 1865 to Present*. Historic Resource Study, prepared for the National Park Service, Denver Service Center, Denver, CO.

Gugelyk, Ted and Milton Bloombaum
1979 *The Separating Sickness, Ma`iHo`oka`awale*. Honolulu, HI: University of Hawai‘i, Social Science Research Institute.

Guidry, Michael W. and Fred T. Mackenzie
2012 “Future Climate Change, Sea-Level Rise, and Ocean Acidification: Implications for Hawai‘i and Western Pacific Fisheries Management.” University of Hawai‘i Sea Grant College Program, School of Ocean and Earth Science and Technology.

Halliday, W. R.
2001 “Caves and cavernous features of Kalaupapa Peninsula,” Hawai‘i Speleological Survey of the National Speleological Society, Report #01-1.

Handy, E. S. C. and E. G. Handy
1972 *Native Planters in Old Hawai‘i: Their Life, Lore, and Environment*. Honolulu, HI: Bishop Museum Press.

Hawai‘i Board of Health
1886 Report of the President of the Board of Health to the Legislative Assembly of 1886, on Leprosy. Honolulu, HI: Daily Bulletin Steam Printing Office.

Hawai‘i Natural Heritage Program
1989 “Pu‘u Ali‘i Natural Area Reserve Resource Information, Notebook 1.” Prepared for State of Hawai‘i, Natural Area Reserves System. Hawai‘i Heritage Program, The Nature Conservancy of Hawai‘i, Honolulu, HI.

Hays, W. S. T. and S. Conant
2007 “Biology and Impacts of Pacific Island Invasive Species. 1. A Worldwide Review of Effects of the Small Indian Mongoose, *Herpestes javanicus* (Carnivora: Herpestidae),” *Pacific Science* 61(1):3–16.

Higashi,G. R. and M. N. Yamamoto
1993 ”Rediscovery of ”Extinct” *Lentipes concolor* (Pisces: Gobiidae) on the Island of Oahu, Hawai‘i.” *Pacific Science* 47(2): 115–17.

Hodges M., and Cathleen Natividad
1996 Observation of Seabird Survey at Kalaupapa. Memorandum to Rick Potts, Kalaupapa NHP Wildlife Biologist. June 27, 1996.

Hoegh-Guldberg, O., P. J. Mumby, A. J. Hooten, R. S. Steneck, P. Greenfield, E. Gomez, C. D. Harvell, P. F. Sale, A. J. Edwards, K. Caldeira, N. Knowlton, C. M. Eakin, R. Iglesias-Prieto, N. Muthiga, R. H. Bradbury, A. Dubi, M. E. Hatzios
2007 “Coral Reefs Under Rapid Climate Change and Ocean Acidification.” *Science* 318 (5857): 1737–42.

Holthuis, L. B.
1973 “Caridean shrimps found in land-locked saltwater pools at four Indo-west Pacific localities (Sinai Peninsula, Funafuti Atoll, Maui and Hawai‘i Islands), with the description of one new genus and four new species,” *Zool. Verhadenlingen* 128:3–55.

Hughes, G. D., K. R. Wood, M. L. Wysong, and E. K. Brown
2007 “Kalaupapa National Historical Park, Vascular Plant Inventory, Kalawao, Moloka‘i, Hawai‘i.” Report for the National Park Service Inventory and Monitoring Program, Pacific Island Network, Hawai‘i Volcanoes National Park, HI.

Hughes, R. F., P. M. Vitousek, and J. T. Tunison
1991 “Alien grass invasion and fire in the seasonal submontane zone of Hawai‘i.” *Ecology* 72: 743–46.

Hutchison, Ambrose T.
1931 In Memory of Reverend Father Damien J. De Veuster and Other Priests Who Have Labored in the Leper Settlement of Kalawao, Molokai. Typed manuscript available at Kalaupapa National Historical Park.

Ikuma, E. K., D. Sugano, and J. K. Mardfin
2002 “Filling the Gaps in the Fight Against Invasive Species,” Report No. 1. Honolulu, HI: Legislative Reference Bureau, State Capitol.

Intergovernmental Panel on Climate Change (IPCC)
2007 *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Core Writing Team, ed. R. K. Pachauri and A. Reisinger. Geneva, Switzerland: IPCC.

Jessel, S. and R. Agliam
1994 “Kukaiwaa, North Shore Moloka‘i , Carter’s Panic Grass (*Panicum fauriei* var. *carteri*),” August 22–25, 1994. Unpublished report.

Jones, V. P., P. Anderson-Wong, P. A. Follett, P. Yang, D. M. Westcot, John S. Hu, and D. E. Ullman
2000 “Feeding damage of the introduced leafhopper *Sophonia rufofascia* (Homoptera: Cicadellidae) to plants in forests and watersheds of the Hawai‘ian islands,” *Environmental Entomology* 29(2): 71–180.

Juvik, Sonia
2007 *Kalaupapa Landscape: An Ethnographic Study*. Prepared for the National Park Service, Pacific West Region Social Science Series, Publication Number 2007-03.

Juvik, S., J. O. Juvik, and T. R. Paradise
1998 *Atlas of Hawai‘i*, 3rd ed. Honolulu, HI: University of Hawai‘i Press.

Katahira, L.
1995 “Draft environmental assessment: Construct feral animal proof fence at Kauhakō Crater,” unpublished report for the National Park Service, Kalaupapa National Historical Park, Molokai, HI.

Kenis, M. M. A Auger-Rozenberg, A. Roques, L. Timms, C. Pere, M. J. W. Cock, J. Settele, S. Augustin, and C. Lopez-Vaamonde
2009 “Ecological effects of invasive alien insects,” *Biological Invasions* 11:12–45.

Kingsolver, J. M. and J. E. Decelle
1979 “Host Associations of *Specularius impressithorax* (Insecta, Coleoptera, Bruchidae) with species of *Erythrina* (Fabales, Fabaceae),” *Annals of the Missouri Botanical Garden* 66(3): 528–32.

Kirch, Patrick V.
1985 *Feathered Gods and Fishhooks: An Introduction to Hawai‘ian Archaeology and Prehistory*. Honolulu, HI: University of Hawai‘i Press.

Kondratieff, B. C., R. J. Bishop, and A. M. Brasher
1997 “The life cycle of an introduced caddisfly, *Cheumatopsyche pettiti* (Banks) (Trichoptera: Hydropsychidae) in Waikolu stream, Moloka‘i, Hawai‘i,” *Hydrobiologia* 350: 81–85.

Korn, Alfons L.
1976 *News from Molokai, Letters Between Peter Kaeo and Queen Emma, 1873–1876*. Honolulu, HI: The University Press of Hawai‘i.

Kozar, K., R. Swift, and S. Marshall
2007 “Shoreline bird inventories in three national parks in Hawai‘i: Kalaupapa National Historical Park, Haleakala National Park and Hawai‘i Volcanoes National Park,” Technical Report 149, Pacific Cooperative Studies Unit. Honolulu, HI: University of Hawai‘i at Manoa.

Kraus, F.
2005. “Inventory of Reptiles and Amphibians in Hawai‘i Volcanoes, Haleakala, and Kalaupapa National Parks.” Contribution No. 2005-013 to the Hawai‘i Biological Survey. Prepared for Pacific Cooperative Studies Unit, University of Hawai‘i, Honolulu, HI.

Krushelnickyet, P. D., L. L. Loope, and N. J. Reimer
2005 “The Ecology, Policy, and Management of Ants in Hawai‘i,” *Proceedings of the Hawai‘ian Entomological Society* 37:1-25.

Kuykendall, Ralph S.
1953b *The Hawai‘ian Kingdom, Volume 2: Twenty Critical Years, 1854–1874*. Honolulu, HI: University of Hawai‘i Press.

Ladefoged, Thegn
1990 *A Dryland Agricultural System at Kalaupapa, Moloka‘i: Archaeological Inventory Survey, Airport Improvement Project*. Honolulu, HI: International Archaeological Research Institute.

Langlas, C., K. McGuire, and S. Juvik
2008 *Kalaupapa 2002–2005: A Summary Report of the Kalaupapa Ethnographic Project*. National Park Service.

LaPointe, D. A.
2008 “Dispersal of *Culex quinquefasciatus* (Diptera: Culicidae) in a Hawai‘ian rain forest.” *Journal of Medical Entomology* 45(4): 600–09.

LaPointe, D. A., M. L. Goff, and C. T. Atkinson
2005 “Comparative susceptibility of introduced forest-dwelling mosquitoes in Hawai‘i to avian malaria *Plasmodium relictum*.” The Journal of Parasitology 91: 843–49.

LaRosa, A. M.
1992 “The status of banana poka in Hawai‘i.” In *Alien Plant Invasions in Native Ecosystems of Hawai‘i: Management and Research*, edited by C. P. Stone, C. W. Smith, and J. T. Tunison 271–99. Honolulu, HI: Cooperative National Park Resources Studies Unit, University of Hawai‘i at Manoa.

Law, Anwei Skinsnes
1984–85 Oral History Interviews, Kalaupapa. Volume 1. Conducted for the Hawai‘i State Library for the Blind and Physically Handicapped, Honolulu, HI.

1985–87 Oral History Interviews, Kalaupapa. Volume 2. Conducted for the National Park Service.

1988–89 Oral History Interviews, Kalaupapa. Volume 3.

Le, Y. and S. J. Hollenhorst
2011 *Kalaupapa National Historical Park Visitor Study*. Prepared by Visitor Services Project, Park Studies Unit, University of Idaho.

Lee, Cynthia S. Y., Gregg G. Fleming, Christopher J. Roof, John M. MacDonald, Christopher J. Scarpone, Andrew R. Malwitz, and Gary Baker
2006 “Baseline Ambient Sound Levels in Kalaupapa National Historical Park.” Report submitted by the U.S. Department of Transportation, Federal Aviation Administration to the National Park Service.

LeGrande, M.
2002 “Survey of Kukaiwaa Peninsula, Kalaupapa National Historical Park, Moloka‘i, Hawai‘i.” Special Report Prepared for Kalaupapa National Historical Park, Molokai, HI.

Lenz L. and J. A. Taylor
2001 “The influence of an invasive tree species (*Myrica faya*) on the abundance of an alien insect (*Sophonia rufofascia*) in Hawai‘i Volcanoes National Park.” *Biological Conservation* 102(3): 301–07.

Leung, PingSun and Matthew Loke
2008 “Economic Impacts of Increasing Hawai‘i’s Food Self-Sufficiency.” *Economic Issues* EI-16. Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawai‘i at Manoa.

Linney, G.
1987 “Botanical survey of Kauhakō Crater, Kalaupapa National Historical Park, Moloka‘i.” National Park Service, Kalaupapa NHP files, Molokai, HI.

Loope. L. L., F. G. Howarth, F. Kraus, and T. K. Pratt
2001 “Newly emergent and future threats of alien species to Pacific birds and ecosystems.” *Studies in Avian Biology* 22: 291–304.

Lowe S., M. Browne, S. Boudjelas, and M. De Poorter
2000 *100 of the World’s Worst Invasive Alien Species: A selection from the Global Invasive Species Database*. The Invasive Species Specialist Group (ISSG), Species Survival Commission (SSC), World Conservation Union (IUCN), n. p.

Maciolek, J. A.
1975 “Limnological ecosystems and Hawai‘i’s preservational planning,” *Intl. Ver. Theor. Angew. Limnol. Ver.* 19:1461–67.

1982 “Lakes and lake-like waters of the Hawai‘ian archipelago,” *Occasional Papers of Bernice P. Bishop Museum* 25:1–14.

Magin, Janis L.
2008 “Study pegs Moloka‘i Ranch’s economic impact at \$9M.” *Pacific Business News*, March 28.

Major, Maurice and Boyd Dixon
1995 Final Technical Report: Archaeological Survey and Evaluation, USAF Receiver Station, Hoolehua, Moloka‘i, Maui County, Hawai‘i.

Marshall S. R. and S. N. R. Aruch
2003 “Kalaupapa Shoreline Seabird Survey, 1 December 2003.” Unpublished report.

Marshall S., G. Hughes and K. Kozar
2008 “Small, Non-native Mammal Inventory in Kalaupapa National Historical Park,” Technical Report 158, Pacific Cooperative Studies Unit. Honolulu, HI: University of Hawai‘i at Manoa.

Marshall, S. and K. Kozar
2008 “Forest Bird Inventory, Kalaupapa National Historical Park.” Technical Report 154, Pacific Cooperative Studies Unit. Honolulu, HI: University of Hawai‘i at Manoa.

Manning, Elizabeth and Earl ‘Buddy’ Neller.
n.d. “Surveys of Kalaupapa.”

Maui County Planning Department
2006 “Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030.” Prepared for the County of Maui, Wailuku, HI.

McAvoy, Audrey
2008 “Moloka‘i’s biggest tourist business shutting hotel, golf course, on Hawai‘ian island.” *The Associated Press*. Republished by *The Seattle Times*, March 25.

McCoy, Mark D., ed.
2005 “Kalaupapa Archaeology: A Collection of Five Archaeological Surveys in Kalaupapa National Historical Park.” Report on file with the Hawai‘i State Historic Preservation Division, Kapolei, HI.

McCoy, Mark D.
2005 “The Lands of Hina: An Archaeological Overview and Assessment of Kalaupapa National Historical Park, Moloka‘i.” Technical Report 135, Pacific Cooperative Studies Unit. Honolulu, HI: University of Hawai‘i at Manoa.

2006 “Landscape, Social Memory, and Society: An Ethnohistoric-Archaeological Study of Three Hawai‘ian Communities.” Ph.D. diss., University of California, Berkeley.

2007 “A Revised late Holocene Culture History for Moloka‘i Island, Hawai‘i.” *Radiocarbon* 49.3 (2007): 1273–1322.

McCoy, M. D. and A. S. Hartshorn
2007 “Wind erosion and intensive prehistoric agriculture: a case study from the Kalaupapa Field System, Hawai‘i.” *Geoarchaeology* 22, 511–32.

McKeown, Sean
1996 *A Field Guide to Reptiles and Amphibians in the Hawai‘ian Islands*. Los Osos, CA: Diamond Head Publishing, Inc.

Medeiros, A. C. and C. G. Chimera
1997a “Monitoring Methods for *Tetramolopium rockii* exclosure, Kalaupapa NHP, Moloka‘i, April 8–9.” Unpublished report.

1997b “Monitoring Methods for *Centaurium sebaeoides* exclosure, Kalaupapa NHP, Moloka‘i, April 9–10, 1997.” Unpublished report.

Medeiros, A. C., C. G. Chimera, and L. L. Loope
1996 “Kauhakō Crater Botanical Resource and Treat Monitoring, Kalaupapa National Historical Park, Island of Moloka‘i, Hawai‘i.” Technical Report 110, Pacific Cooperative Studies Unit. Honolulu, HI: University of Hawai‘i at Manoa.

Medeiros, A. C., C. G. Chimera, L. L. Loope, S. M. Joe, and P. D. Krushelnicky
2000 “Notes on Status and Ecology of the Endangered Hawai‘ian Annual ‘Āwiwi, *Centaurium sebaeoides* (Gentianaceae).” *Pacific Science* 54(4):417–22.

Minton, D. and M. Carnevale
2006 “A Preliminary Survey of the Marine and Intertidal Invertebrates at Kalaupapa National Historical Park (Moloka‘i, Hawai‘i).” Report submitted to Kalaupapa National Historical Park, Natural Resources Division, Molokai, HI.

Mobley, J., S. Spitz, R. Grotefendt, P. Forestell, A. Frankel, and G. Bauer
2001 “Abundance of humpback whales in Hawai‘ian waters: Results of 1993–2000 aerial surveys.” Report to Hawai‘ian Islands Humpback Whale National Marine Sanctuary, Kihei, HI.

Moblo, Pennie
1996 “Defamation by Disease: Leprosy, Myth, and Ideology in Nineteenth-century Hawai‘i.” Ph.D. diss., University of Hawai‘i, Honolulu, HI.

1997 “Blessed Damien of Molokai: The Critical Analysis of a Contemporary Myth.” *Ethnohistory* 44: 4, 691–726.

Molokai Chamber of Commerce
2011 “Membership List.” <<http://molokaichamber.org/members>>.

Molokai Community
2008 *Molokai: Future of a Hawai‘ian Island*. <<http://molokai.org/fileadmin/user/pdf/molokai.pdf>>.

Molokai Enterprise Community
2006–08 “Annual Report Executive Summary.” <<http://www.rurdev.usda.gov/rbs/ezec/Communit/Molokai.html>>.

Molokai Land Trust
2008 “Molokai Ranch Gifts 1600 Acres to Moloka‘i Land Trust.” News release, April 14, 2008. <http://www.mauilandlaw.com/PDFs/MLT-MokioApril14_08.pdf>.

Moors, P. J., I. A. E. Atkinson, and G. H. Shelly
1992 “Reducing the rat threat to island birds.” *Bird Conservation International* 2:93–114.

Mouritz, Arthur
1916 The Path of the Destroyer: A History of Leprosy in the Hawai‘ian Islands. Honolulu, HI: Honolulu Star-Bulletin.

Meyer, Rudolph
1866 Letter to Ferdinand Hutchison, Minister of the Interior, January 22, 1866. On file. State of Hawai‘i Archives, Incoming Letters to the Board of Health.

1873 Letter to C. T. Gulick, Secretary of the Board of Health, March 28, 1873. On file. State of Hawai‘i Archives, Incoming Letters to the Board of Health.

National Park Service, U.S. Department of the Interior
1976 *National Register of Historic Places Inventory—Nomination Form: Kalaupapa Leprosy Settlement*. NR #76002415. Prepared by Office of State Director.

1980 *General Management Plan, Kalaupapa National Historical Park*. Molokai, HI: Kalaupapa National Historical Park.

1982 *National Register of Historic Places Inventory—Nomination Form: U.S. Coast Guard Molokai Light*. NR #82001724. Prepared by 14th Coast Guard District.

1984 *Cooperative Agreement between National Park Service and State of Hawai‘i, Department of Health*. Cooperative Agreement CA8896-4-0001, dated March 30, 1984.

1987 *Cooperative Agreement between National Park Service and State of Hawai‘i, Department of Transportation*. Cooperative Agreement CA8896-7-8005, dated March 9, 1987.

1989 *Cooperative Agreement between National Park Service and State of Hawai‘i, Board of Land and Natural Resources*. Cooperative Agreement CA8896-9-8004, dated July 27, 1989.

1990a *Resource Management Plan*. Kalaupapa, Molokai, HI: Kalaupapa NHP.

1990b *A Strategic Plan for Transition at Kalaupapa Settlement*. Prepared by Pacific Basin Development Council for Communicable Disease Division. Department of Health. State of Hawai‘i. October 1990.

1992 *General Lease between State Of Hawai‘i, Department of Hawai‘ian Home Lands and the United States of America, Department of Interior, National Park Service*. General Lease No. 231 dated 22 September 1992, Tax Map Key No. 6-1-01:01).

1997 *Kalaupapa National Historical Park Strategic Plan*, Government Performance and Results Act. Kalaupapa, Molokai, HI: Kalaupapa NHP.

1999 *Long-range Interpretative Plan, Kalaupapa National Historical Park*. Kalaupapa, Molokai, HI: Kalaupapa NHP.

2000 *Resource Management Plan, Kalaupapa National Historical Park*. Kalaupapa, Molokai, HI: Kalaupapa NHP.

2001 “Introduction to the Kalaupapa Marine Environment,” by Bill Eichenlaub. Unpublished report, 18 February 2001, n. p.

2004 “Final Environmental Assessment, Construction of Ungulate-Proof Fencing, Upper Pu‘u Ali‘i Plateau.” Pu‘u Ali‘i Natural Areas Reserve, Molokai, HI: unpublished report.

2006a “Appendix A: Kalaupapa National Historical Park Resource Overview,” by Sam Aruch. In *Pacific Island Network Vital Signs Monitoring Plan* by L. HaySmith, F. L. Klasner, S. H. Stephens, and G. H. Dicus. Natural Resource Report NPS/PACN/NRR—2006/003, National Park Service, Fort Collins, CO.

2006b “Cultural Resource Management, 5.3.5.3 Ethnographic Resources.” In *NPS Management Policies 2006*. Washington, D.C.: U.S. Government Printing Office.

2007 Hansen’s disease Patient Interviews. Conducted by Sheldon Loui, Sharon A. Brown, Eric Brown, and Jennifer Cerny. Kalaupapa, Molokai, HI: Kalaupapa NHP.

2009 *National Park Visitor Spending and Payroll Impacts 2008*. Prepared by Daniel J. Stynes, Department of Community, Agriculture, Recreation and Resource Studies. Michigan State University.

2010a *Project to Repair the Kalaupapa Dock Structures Environmental Assessment*. Prepared by Denver Service Center, Denver, CO.

2010b *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historical Park, 2010*. Natural Resource Program Center, Fort Collins, CO.

2010c *Kalaupapa National Historical Park Jurisdictional Inventory*. Kalaupapa, Molokai, HI: Kalaupapa NHP.

2011 *Cultural Landscapes Inventory: Kalaupapa and Kalawao Settlements*. Pacific West Region Cultural Resources Program, San Francisco, CA.

2011 *Kalaupapa National Historical Park Fire Management Plan and Environmental Assessment*. Kalaupapa, Molokai, HI: Kalaupapa NHP.

2012 Kalaupapa NHP Visitor Use Statistics. <<https://irma.nps.gov/Stats/Reports/ReportList>>.

2012 “NPS Response to Climate Change.” <<http://www.nps.gov/climate/change/response.cfm>>.

2013 Remote Automated Weather Station (RAWS) data collected from <<http://www.raws.dri.edu/wraws/hiF.html>>.

In prep “Archaeological Monitoring Report on Recycling and Composting Centers, Kalaupapa Settlement,” by Erika T. Viernes-Stein. Kalaupapa, Molokai, HI: Kalaupapa NHP.

Nogueira-Filho, S. L. G., S. S. C. Nogueira, and J. M. V. Fragoso
2009 “Ecological impacts of feral pigs in the Hawai‘ian Islands.” *Biodiversity and Conservation* 18:3677–83.

Pacific Business News
2008 “Feds give \$389K to Moloka‘i Ranch workers.” June 19.

PBR Hawai‘i & Associates, Inc.
2007 *Lā‘au Point: Proposed Final Environmental Impact Statement, West Moloka‘i, Molokai, Hawai‘i*. Prepared for Accepting Authority, State of Hawai‘i Land Use Commission and Moloka‘i Properties Limited.

Pimental, D., R. Zuniga, and D. Morrison
2005 “Update on the environmental and economic costs associated with alien-invasive species in the United States.” *Ecological Economics* 52: 273–88.

Polhemus, D. A.
1992 “A Preliminary Report on the Aquatic Insect Fauna of Waikolu Stream, Moloka‘i, Hawai‘i.” Unpublished report prepared for Division of Aquatic Resources, Department of Land and Natural Resources, Honolulu, HI.

1996 “The Orangeblack Hawai‘ian Damselfly, *Megalagrion xanthomelas* (Odonata: Coenagrionidae): Clarifying the Current Range of a Threatened Species.” *Bishop Museum Occasional Papers* 45: 30–53.

Pukui, Mary Kawena, Samuel H. Elbert, and Esther T. Mookini
1974 *Place Names of Hawai‘i*. Revised edition, Honolulu, HI: University of Hawai‘i Press.

Purnell, Nanette Napoleon
1998 *Oahu Cemetery: Burial Ground & Historic Site, Founded 1844*. Honolulu, HI: Oahu Cemetery Association.

Rathje, William L.
1978 “Archaeological Ethnography . . . Because Sometimes it is Better to Give than to Receive.” In *Exploration in Ethnoarchaeology*, edited by Richard A. Gould 49–75. Albuquerque, NM: University of New Mexico Press.

Remy, M. Jules
1893 *L’Île de Molokai avant la léproserie: journal de M. Jules Remy*. Arcis-sur-Aube, France: Imprimerie Léon Frémont. Translated by Mildred M. Knowlton for C. C. Summers, Oct. 1975, copy in Bishop Museum Library, Honolulu, HI. Transcribed by Sam ‘Ohukani‘ōhi‘a Gon III, March 2008.

Rivera, M. A. J., F. G. Howarth, S. Taiti, and G. K. Roderick
2002 “Evolution in Hawai‘ian cave-adapted isopods (Oniscidea: Philosciidae): Vicariant speciation or adaptive shift.” *Molecular Phylogenetics and Evolution* 25:1–9.

Roberts, Benjamin
2004 Letter to Chiyome Leinala Fukino, M.D., Director of Health, State of Hawai‘i. 10 November 2004.

Rocky Mountain Climate Organization and Natural Resources Defense Council
2009 *National Parks in Peril: The Threats of Climate Disruption*, by Tom Easley, Suzanne Farver, and Stephen Saunders. Louisville, CO: Rocky Mountain Climate Organization.

Santo, L. T.
2001 “Assessment and improvement recommendations for the Molokai Irrigation System.” Hawai‘i Agriculture Research Center report submitted to Molokai Irrigation System, Aiea, HI.

Satake, K., J. R. Smith, and K. Shinozaki
2002 “Volume estimate and tsunami modeling for the Nuuanu and Wailau landslides.” In *Hawai‘ian Volcanoes: Deep Underwater Perspectives*, edited by E. Takahashi, P. W. Lipman, M. O. Garcia, J. Naka, and S. Aramaki 333–48, vol. 128. Washington, D.C.: American Geophysical Union.

Scott, J. M, S. Mountainspring, F. L. Ramsey, and C. B. Kepler
1986 “Forest bird communities of the Hawai‘ian Islands: their dynamics, ecology, and conservation.” *Studies in Avian Biology* 9. Lawrence, KS: Allen Press for Cooper Ornithological Society.

Scowcroft, P. G. and H. F. Sakai
1984 “Stripping of *Acacia koa* bark by rats on Hawai‘i and Maui.” *Pacific Science* 38(1):80–86.

Scowcroft, P. G. and C. E. Conrad
1992 “Alien and native plant response to release from feral sheep browsing on Mauna Kea.” In *Alien Plant Invasions in Native Ecosystems of Hawai‘i: Management and Research*, edited by C. P. Stone, C. W. Smith, and J. T. Tunison 625–65. Honolulu, HI: Pacific Cooperative Studies Unit, University of Hawai‘i at Manoa.

Somers, Gary F.
1985 *Kalaupapa, More than a Leprosy Settlement: Archeology at Kalaupapa National Historical Park*. Tucson, AZ: Western Archeological and Conservation Center, National Park Service.

Spriggs, Matthew and A. Anderson
1993 “Late Colonization of East Polynesia.” *Antiquity* 67.255 (1993): 200–217.

Staples, G. W. and Cowie, R. H.
2001 *Hawai‘i’s Invasive Species: A Guide to Invasive Plants and Animals in the Hawai‘ian Islands*. Honolulu, HI: Mutual Publishing & Bishop Museum Press.

State of Hawai‘i, Department of Business, Economic Development and Tourism. (DBEDT)
2008 “Table 7.01. Passengers Arriving, by Point of Origin and Transit Status: 1999 to 2008,” Individual Tables, *2008 State of Hawai‘i Data Book*. <[http://Hawai‘i.gov/dbedt/info/economic/databook/2008-individual/07/](http://Hawai'i.gov/dbedt/info/economic/databook/2008-individual/07/)>.

2010a “2010 Monthly Visitor Statistics.” <<http://hawaii.gov/dbedt/info/visitor-stats/tourism/>>.

2010b *2010 State of Hawai‘i Data Book*. <<http://hawaii.gov/dbedt/info/economic/databook/2008-individual/07/>>.

2011 *2011 State of Hawai‘i Data Book*. <<http://dbedt.hawaii.gov/economic/databook/db2011/>>.

2013 “2010 Census Demographic Profile: Census Designated Places: Neighbor Islands.” Statistics for Molokai Communities. <http://dbedt.hawaii.gov/census/Census_2010/demographic/demo_profile_cdp_NI/index_html/>.

n. d. “Population and Economic Projections for the State of Hawai‘i to 2035—Revised, DBEDT 2035 Series Appendix Tables (Revised).” <[http://Hawai‘i.gov/dbedt/info/economic/data_reports/2035LongRangeSeries/index_html/view?searchterm=population projections](http://Hawai'i.gov/dbedt/info/economic/data_reports/2035LongRangeSeries/index_html/view?searchterm=population%20projections)>.

State of Hawai‘i, Department of Hawai‘ian Home Lands (DHHL)
2005 *Moloka‘i Island Plan*.

2010 *Island of Moloka‘i, Regional Plan*. Kapolei, HI.

2011 “Beneficiary Consultation: Kalaupapa–NPS Preliminary Alternatives.” <<http://www.Hawaiianhomelands.org/wp-content/uploads/2011/06/BC-KALAUPAPA-Notes-6-29-11-6-30-11.pdf>>.

State of Hawai‘i, Department of Health
1990 *A Strategic Plan for Transition at Kalaupapa Settlement*. Prepared by Pacific Basin Development Council for Communicable Disease Division, Department of Health, State of Hawai‘i, Honolulu, HI.

2004 *Report to the Twenty-Third Legislature, State of Hawai‘i, 2005*. <<http://Hawaii.gov/health/about/legrpts2005/cdd.pdf>>.

2005 *Report to the Twenty-Third Legislature, State of Hawai‘i, 2006*. <<http://Hawaii.gov/health/about/legrpts2006/326-kalaupapa.pdf>>.

2006 *Report to the Twenty-Fourth Legislature, State of Hawai‘i, 2007*. <<http://Hawaii.gov/health/about/legrpts2007/sec326-25.5kalaupapa-rpt.pdf>>.

2007 *Report to the Twenty-Fourth Legislature, State of Hawai‘i, 2008*. <<http://gen.doh.Hawaii.gov/sites/LegRpt/20081/ACT213SEC31.pdf>>.

2008 *Report to the Twenty-Fifth Legislature, State of Hawai‘i, 2009*. <<http://gen.doh.Hawaii.gov/sites/LegRpt/20091/Legis%20rpt%202009%20KS%20Pension%20DOC.pdf>>.

2010 *Report to the Twenty-Sixth Legislature, State of Hawai‘i, 2011*. <<http://co.doh.Hawaii.gov/sites/LegRpt/2011/Reports/1/KALAUPAPA%20REPORT.pdf>>.

2011 *Report to the Twenty-Sixth Legislature, State of Hawai‘i, 2012*. <[http://co.doh.Hawaii.gov/sites/LegRpt/2012/Reports/1/Kalaupapa%20Report%20To%20Hawai‘i%27s%20Legislature,%202012.pdf](http://co.doh.Hawaii.gov/sites/LegRpt/2012/Reports/1/Kalaupapa%20Report%20To%20Hawai'i%27s%20Legislature,%202012.pdf)>.

State of Hawai‘i; Department of Human Services; Benefit, Employment and Support Services Division
n. d. “SNAP Monthly Participation Rates for SFY 2010 (July–October).” <http://Hawaii.gov/dhs/self-sufficiency/benefit/index_html#FNS>.

State of Hawai‘i, Department of Labor and Industrial Relations
n. d. Hawai‘i Workforce Informer: Unemployment/Labor Force Estimates, Not Seasonally Adjusted.” <http://www.hiwi.org/admin/uploadedPublications/475_LFMK.PDF>.

State of Hawai‘i, Department of Land and Natural Resources, Commission on Water Resource Management
1990 “Hawaii stream assessment: A preliminary appraisal of Hawai‘i’s stream resources,” by the National Park Service, Hawai‘i Cooperative Park Service Unit, Western Region Natural Resources and Research Division, Report R84. Honolulu, HI.

State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW)
1991 *Pu‘u Ali‘i Natural Area Reserve Management Plan*. Natural Area Reserves System Program, n. p.

2005 *Hawai‘i’s Comprehensive Wildlife Conservation Strategy* by C. Mitchell, C. Ogura, D. W. Meadows, A. Kane, L. Strommer, S. Fretz, D. Leonard, and A. McClung.

2007 *Final Environmental Assessment: Pu‘u Ali‘i Conservation Fencing Project, Upper Pu‘u Ali‘i Plateau, Pu‘u Ali‘i Natural Area Reserve, Moloka‘i*. Honolulu, HI.

2009 *Moloka‘i Forest Reserve Management Plan*. Honolulu, HI: Forest Management Section.

State of Hawai‘i, Department of Land and Natural Resources, Division of Water and Land Development
1994 *Draft environmental assessment and negative declaration*. Job No. 3-9W-J1 Waikolu valley wells development (0855-05 & 06) pump controls and connecting pipeline. Molokai Irrigation System, Kalawao, Molokai, Hawai‘i.

State of Hawai‘i, Department of Transportation. Airports Division
n. d. “Moloka‘i Airport and Kalaupapa Airport Information.” <<http://Hawaii.gov/mkk>>.

Department of Transportation, Harbors Division
n. d. “Kaunakakai Harbor Schedule List.” <<http://Hawaii.gov/dot/harbors/file-links/daily-shipping-schedule/kaunakakai.pdf>>.

State of Hawai‘i, Office of the Auditor
2003 *Audit of Kalaupapa Settlement Operations and Expenditures: A Report to the Governor and the Legislature of the State of Hawai‘i*. Report No. 03-15, December 2003.

State of Hawai‘i, Office of the Governor
2008 “Governor Lingle Releases \$510,000 for Improvements to Kalaupapa Settlement Nursing Facility on Moloka‘i,” February 12, 2008.

2009 *State of the State Address*, January 26, 2009.

Stearns, H. T. and G. A. Macdonald
1947 *Geology and Ground-water Resources of the Island of Molokai, Hawai‘i*. Honolulu, HI: Hawai‘i Division of Hydrography, Bulletin 11.

Stone, C. P.
1985 “Alien Animals in Hawai‘i’s Native Ecosystems: Toward Controlling the Adverse Effects of Introduced Vertebrates.” In *Hawai‘i’s Terrestrial Ecosystems: Preservation and Management*, edited by C. P. Stone and J. M. Scott 251–97. Honolulu, HI: Cooperative Resources Studies Unit, University of Hawai‘i at Manoa.

Summers, Catherine C.
1971 “Moloka‘i : A Site Survey.” *Pacific Anthropological Records* 14. Honolulu, HI: Bishop Museum Department of Anthropology.

Swenson, C.
2008 Offshore Islet Restoration Committee. <<http://www.Hawaiiioirc.org/OIRC-ISLETS.htm>>.

Takasaki, K. J.
1986 *Results of Exploratory Drilling for Water in Waihānau Valley, Moloka‘i, Hawai‘i*. USGS Water-Resources Investigations Report 85-4332, Honolulu, HI.

The Nature Conservancy
2003 *Pelekunu Preserve Long-range Management Plan, Fiscal Years 2004–2009*. Molokai, HI: Submitted to the Department of Land and Natural Resources, Natural Area Partnership Program.

Tom, Shauna Kehaunani
2011 “An investigation of the cultural use and population characteristics of ‘opihi (Mollusca: *Cellana spp.*) at Kalaupapa National Historical Park.” *M.S. thesis, University of Hawai‘i, Hilo*.

Unea, John
1917 “Na Mea Hou o Ka Aina o Ka Ehaeha, Kalaupapa, Molokai.” *Aloha Aina*. April 13, 1917)

United Nations Framework Convention on Climate Change
1992 *United Nations Framework Convention on Climate Change*. <<http://unfccc.int/resource/docs/convkp/conveng.pdf>>.

U.S. Bureau of Economic Analysis, U.S. Department of Commerce
2007 “Regional Economic Accounts Interactive Chart, Per Capita Real GDP by State for Hawai‘i (chained 2000 dollars), All Industry Total, 2007.” <http://www.bea.gov/regional/REMDchart/default.cfm#chart_top>.

2008 “Regional Economic Accounts Interactive Chart, Gross Domestic Product (GDP) by State for Hawai‘i (millions of current dollars), All Industry Total, 1998 to 2008.” <http://www.bea.gov/regional/REMD-chart/default.cfm#chart_top>.

n. d. “REIS, CA25N File, State of Hawai‘i and Maui/Kalawao Counties.” <http://www.bea.gov/regional/REMDchart/default.cfm#chart_top>.

n. d. “REIS, SA05N: Personal Income by Major Source and Earnings by NAICS Industry.” <http://www.bea.gov/regional/REMDchart/default.cfm#chart_top>.

U.S. Census Bureau
2010a “2010 Census: 2010 & 2011 Population Estimates.” <<http://www.census.gov/>>.

2010b “American Community Survey 5-Year Estimates: 2006–10.”

2010c “2010 City Fact Sheet.”

2010d “2010 Maui County Fact Sheet.”

2010e “2010 Kalawao County Fact Sheet.”

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy
2004 *SAVEnergy Audit* prepared by BRACO Resource Services, January 2004.

U.S. Department of Housing and Urban Development
2010 <http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning>.

U.S. Geological Survey (USGS), U.S. Department of the Interior
2005 *Inventory of Anchialine Pools in Hawai‘i’s National Parks*. USGS FS 2005-3129.

2009 “Kīleaua—Perhaps the World’s Most Active Volcano.” USGS Hawai‘ian Volcano Observatory.

U.S. Global Change Research Program (USGCRP)
2009 *Global Climate Change Impacts in the United States*, by Susan J. Hassol. Washington, D.C.: United States Global Change Research Program.

U.S. Government, Office of the President.
2009 “Economic Report of the President, Together with the Annual Report of the Council of Economic Advisers.” Transmitted to Congress January 2009.

Van Riper, C., III, S. G. Van Riper, and W. R. Hansen
2002 “Epizootiology and effect of avian pox on Hawai‘ian forest birds.” *Auk* 119:929–42.

Vitousek, P. M.
1990 “Biological invasions and ecosystem processes: towards an integration of population biology and ecosystem studies.” *Oikos* 57:7–13.

1992 “Effects of alien plants on native ecosystems.” In *Alien Plant Invasions in Native Ecosystems of Hawai‘i: Management and Research*, edited by C. P. Stone, C. W. Smith, and J. T. Tunison 29–41. Honolulu, HI: Cooperative Resources Studies Unit, University of Hawai‘i at Manoa.

Wanless, R. M., A. Angel, R. J. Cuthbert, G. M. Hilton, and P. G. Ryan
2007 “Can predation by invasive mice drive seabird extinctions?” *Biology Letters* 3:241–44.

Way, C. M, A. J. Burky, J. M. Harding, S. Hau, W. K. L. C. Puleloa
1998 “Reproductive biology of the endemic goby, *Lentipes concolor*, from Makamaka’ole Stream, Maui and Waikolu Stream, Moloka‘i.” *Environmental Biology of Fishes* 51(1): 53–65.

Weisler, Marshall
1989 “Chronometric Dating and Late Holocene Prehistory in the Hawai‘ian Islands: A critical review of radiocarbon dates Moloka‘i Island.” *Radiocarbon* 31 (1989): 121–45.

Wilson, S. B. and A. H. Evans
1890–99 *Aves Hawai‘ienses: the birds of the Sandwich Islands*. London: R. H. Porter.

Wood, K. R.
2001 “Pritchardia Coastal Forest on Huelo Islet, Moloka‘i, Hawai‘i.” Biological report prepared for Kalaupapa National Historical Park, Molokai, HI. Unpublished report.

Wood, K. R. and G. D. Hughes
2003 “Regional Checklist of Vascular Plants, Pu‘u Ali‘i Natural Area Reserve, Moloka‘i, Hawai‘i.”

Wood, K. R. and M. LeGrande
2002 “Personal observations of Okala Islet, Moloka‘i, Hawai‘i, including a regional checklist of vascular plants, *Pritchardia* coastal forest on Huelo Islet, Molokai, Hawai‘i.” Special report prepared for Kalaupapa National Historic Historical Park Molokai, HI. Unpublished report.

Woods, Fred E.
2008 “Most Influential Mormon Islander: Jonathan Hawai‘i Napela.” *Hawai‘ian Journal of History* 42: 135–57.

World Health Organization (WHO)
n.d. “Leprosy elimination, Leprosy: the disease.” World Health Organization. <<http://www.who.int/lep/leprosy/en/index.html>>.

Wyban, C. A.
1993 *Report on the Kalaupapa Fishpond*. On file at Kalaupapa NHP.

Xu, T., C. M. Jacobsen, I. K.Cho, A. H. Hara, and Q. X. Li
2006 “Application of an enzyme-linked immunosorbent assay for the analysis of imidacloprid in wiliwili tree, *Erythrina sandwicensis* O.DHS Deg, for control of the wasp *Quadrastichus erythrinae*.” *Journal of Agricultural and Food Chemistry* 54:8444–49.

Yokose, H.
2002 “Landslides on the windward flanks of Oahu and Molokai, Hawai‘i: Shinkai 6500 submersible investigations.” *American Geophysical Union Monograph* 128, 245–61.

Yost, A. and R. G. Wright
1999 *A Preliminary Study of Axis Deer Distribution, Movements and Food Habits at Kalaupapa National Historical Park—Final Report*. Idaho Cooperative Fish and Wildlife Research Unit, Moscow, ID.

Zouhar, Kristin, Jane Kapler Smith, Steve Sutherland, and Matthew L. Brooks
2008 “Wildland fire in ecosystems: fire and nonnative invasive plants.” Gen. Tech. Rep. RMRS-GTR-42-vol. 6. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

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Glossary

Accessibility: Occurs when individuals with disabilities are able to reach, use, understand, or appreciate NPS programs, facilities, and services, or to enjoy the same benefits that are available to persons without disabilities. See also, “universal design.”

Acoustic ecology: The study of sound in the relationships between organisms and their environment.

Adaptive management: A system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or to re-evaluate the outcomes. Adaptive management recognizes that knowledge about natural resource systems is sometimes uncertain and is the preferred method of management in these cases.

Archeology: The scientific study, interpretation, and reconstruction of past human cultures from an anthropological perspective based on the investigation of the surviving physical evidence of human activity and the reconstruction of related past environments. Historic archeology uses historic documents as additional sources of information.

Archeological resource: Any material remains or physical evidence of past human life or activities which are of archeological interest, including the record of the effects of human activities on the environment. They are capable of revealing scientific or humanistic information through archeological research.

Asset: A physical structure or grouping of structures, land features, or other tangible property which has a specific service or function.

Asset management: A systematic process of maintaining, upgrading, and operating assets cost-effectively by combining engineering principles with sound business practices and economic theory.

Best management practices (BMPs): Practices that apply the most current means and technologies available to not only comply with mandatory environ-

mental regulations, but also maintain a superior level of environmental performance. See also, “sustainable practices/principles.”

Carbon Footprint: A measure of the amount of carbon dioxide produced by a person, organization or state in a given time.

Climate Change: refers to any distinct change in measures of climate lasting for a long period of time. In other words, “climate change” means major changes in temperature, rainfall, snow, or wind patterns lasting for decades or longer. Climate change may result from:

- natural factors, such as changes in the Sun’s energy or slow changes in the Earth’s orbit around the Sun;
- natural processes within the climate system (e.g., changes in ocean circulation);
- human activities that change the atmosphere’s make-up (e.g, burning fossil fuels) and the land surface (e.g., cutting down forests, planting trees, building developments in cities and suburbs, etc.).

CLIP Tool: Software developed jointly by the Environmental Protection Agency and the NPS, was used to calculate the park’s greenhouse gas emissions.

Conserve: To protect from loss or harm; preserve. Historically, the terms conserve, protect, and preserve have come collectively to embody the fundamental purpose of the NPS—preserving, protecting and conserving the national park system.

Consultation (cultural resources): A discussion, conference, or forum in which advice or information is sought or given, or information or ideas are exchanged. Consultation generally takes place on an informal basis; formal consultation requirements for compliance with section 106 of the NHPA are published in 36 CFR Part 800. Consultation with recognized tribes is done on a government-to-government basis.

Cultural Landscape: A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or esthetic values. There are four non-mutually-exclusive types of cultural landscapes: historic

sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Cultural Resource: An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places; and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

Cumulative actions: Actions that, when viewed with other actions in the past, the present, or the reasonably foreseeable future regardless of who has undertaken or will undertake them, have an additive impact on the resource the proposal would affect.

Desired condition (also called management direction and management actions): A park’s natural and cultural resource conditions that the National Park Service aspires to achieve and maintain over time, and the conditions necessary for visitors to understand, enjoy, and appreciate those resources.

Ecosystem: A system formed by the interaction of a community of organisms with their physical and biological environment, considered as a unit.

Ecosystem management: A collaborative approach to natural and cultural resource management that integrates scientific knowledge of ecological relationships with resource stewardship practices for the goal of sustainable ecological, cultural, and socioeconomic systems.

Enabling legislation: The law(s) that establish a park as a unit within the national park system.

Environmental impact statement (EIS): A detailed National Environmental Policy Act analysis document that is prepared, with extensive public involvement, when a proposed action or alternatives have the potential for significant impact on the human environment.

Environmentally preferred alternative (or environmentally preferable alternative): Of the action alternatives analyzed, the one that would best promote the

policies in NEPA section 101. This is usually selected by the planning team members. CEQ encourages agencies to identify an environmentally preferable alternative in the draft EIS or EA.

Ethnographic resource: A site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Facility costs: One-time costs related to a facility, such as the cost associated with building or trail.

Foundation document: A statement that begins a park unit’s planning process and sets the stage for all future planning and decision-making by identifying the park’s mission, purpose, significance, special mandates and the broad, park-wide mission goals. Incorporated into a park unit’s GMP, but may also be produced as a stand-alone document for a park unit.

FTE (full time equivalent): A computed number of employees, representing the number of full-time employees that could have been employed if the reported number of hours worked by part time employees had been worked by full-time employees. For example, two half-time employees equal one FTE.

General management plan (GMP): A plan which clearly defines direction for resource preservation and visitor use in a park, and serves as the basic foundation for decision making. GMPs are developed with broad public involvement.

Geologic resources: Features produced from the physical history of the earth, or processes such as exfoliation, erosion and sedimentation, glaciation, karst or shoreline processes, seismic, and volcanic activities.

Historic district: A geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, landscapes, structures, or objects, united by past events or aesthetically by plan or physical developments.

Human environment: Defined by CEQ as the natural and physical environment, and the relationship of people with that environment. Although the socioeconomic environment receives less emphasis than the physical or natural

environment in the CEQ regulations, NPS considers it to be an integral part of the human environment.

Impact: The likely effect of an action or proposed action upon specific natural, cultural or socioeconomic resources. Impacts may be direct, indirect, individual, cumulative, beneficial, or adverse. (Also see Unacceptable impacts.)

Impact topics: Specific natural, cultural, or socioeconomic resources that would be affected by the proposed action or alternatives (including no action). The magnitude, duration, and timing of the effect to each of these resources is evaluated in the impact section of an EA or an EIS.

Impairment: An impact that, in the professional judgment of a responsible NPS manager, would harm the integrity of park resources or values and violate the 1916 NPS Organic Act’s mandate that park resources and values remain unimpaired.

Implementation plan: A plan that focuses on how to implement an activity or project needed to achieve a long-term goal. An implementation plan may direct a specific project or an ongoing activity.

Indicators of user capacity: Specific, measurable physical, ecological, or social variables that can be measured to track changes in conditions caused by public use, so that progress toward attaining the desired conditions can be assessed

Invasive species: A nonnative species whose introduction does, or is likely to cause, economic or environmental harm or harm to human, animal, or plant health. These species have the ability to displace or eradicate native species, alter fire regimes, damage infrastructure, and threaten human livelihoods.

Issue: Some point of debate that needs to be decided.

Life cycle costing (analysis): An accounting method that analyzes the total costs of a product or service, including construction, maintenance, manufacturing, marketing, distribution, useful life, salvage, and disposal.

Light Pollution: The illumination of the night sky caused by artificial light sources, decreasing the visibility of stars, and other natural sky phenomena. Also includes other incidental or obtrusive aspects of outdoor lighting such as

glare, trespass into areas not needing lighting, alternation of nighttime landscape, and negative impact to ecosystems.

Management concept: A brief, statement of the kind of place the park should be (a “vision” statement).

Management zone: A geographical area for which management directions have been developed to determine what can and cannot occur in terms of resource management, visitor use, access, facilities or development, and park operations. Each zone has a unique combination of resource and social conditions and a consistent management direction. Different actions are taken by the NPS in different zones.

Management zoning: The application of management zones to a park unit. The application of different type of zones and/or size of zones will likely vary in different alternatives.

Management direction (also called desired condition and management prescription): A planning term referring to statements about desired resource conditions and visitor experiences, along with appropriate kinds and levels of management, use, and development for each park area.

Manager: The managerial-level employee who has authority to make decisions or to otherwise take an action that would affect park resources or values. Most often it refers to the park superintendent or regional director, but may at times include, for example, a resource manager, facility manager, or chief ranger to whom authority has been re-delegated.

Mitigation: A modification of a proposal to lessen the intensity of its impact on a particular resource. Actions can be taken to avoid, reduce, or compensate for the effects of environmental damage.

Museum Collection: Assemblage of objects, works of art, historic documents, or natural history specimens collected according to a rational scheme and maintained so they can be preserved, studied, and interpreted for public benefit. Museum collections normally are kept in park museums, although they may also be maintained in archeological and historic preservation centers (NPS DO-28).

Museum object: A material thing possessing functional, aesthetic, cultural, symbolic, and/or scientific value, usually movable by nature or design. Museum objects include prehistoric and historic objects, artifacts, works of art, archival material, and natural history specimens that are part of a museum collection. Structural components may be designated museum objects when removed from their associated structures.

National Park Service Organic Act: The 1916 law (and subsequent amendments) that created the National Park Service and assigned it responsibility to manage the national parks.

National park system: The sum total of the land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational or other purposes.

National Register of Historic Places: The comprehensive federal listing of nationally, regionally, or locally significant districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by the National Park Service in authority of the National Historic Preservation Act of 1966.

NEPA process: The objective analysis of a proposed action to determine the degree of its impact on the natural, physical, and human environment; alternatives and mitigation that reduce that impact; and the full and candid presentation of the analysis to, and involvement of, the interested and affected public –as required of federal agencies by the National Environmental Policy Act of 1969.

Planning, Environment, and Public Comment (PEPC) System: An online database designed to facilitate the project management process in conservation planning and environmental impact analysis. It assists NPS employees in making informed decisions with regard to a number of compliance issues throughout the planning, design, and construction process.

Potential boundary modifications: The description of areas or resources that meet criteria for boundary adjustments, along with the rationale for an adjustment.

Potential management zone: General guidance about an integrated set of resource conditions and associated visitor experiences that could be applied to various locations throughout a park.

Preferred alternative: The alternative an NPS decision-maker has identified as preferred at the draft EIS stage. It is identified to show the public which alternative is likely to be selected to help focus its comments.

Preserve: To protect from loss or harm; conserve. Historically, the terms preserve, protect and conserve have come collectively to embody the fundamental purpose of the NPS—preserving, protecting and conserving the national park system.

Preservation (cultural resources): The act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape or object. Work may include preliminary measures to protect and stabilize the property, but generally focuses upon the ongoing preservation maintenance and repair of historic materials and features rather than extensive replacement and new work.

Professional judgment: A decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision-maker’s education, training, and experience advice or insights offered by subject matter experts and others who have relevant knowledge and experience good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities relating to the decision.

Public involvement (also called public participation): The active involvement of the public in NPS planning and decision-making processes. Public involvement occurs on a continuum that ranges from providing information and building awareness, to partnering in decision making.

Projected implementation costs: A projection of the probable range of recurring annual costs, initial one-time costs, and life-cycle costs of plan implementation.

Record of Decision (ROD): The document that is prepared to substantiate a decision based on an environmental impact statement (EIS). It includes a statement of the decision made, a detailed discussion of decision rationale, and the reasons for not adopting all mitigation measures analyzed, if applicable.

Rehabilitation: In reference to cultural resources, the act or process of making possible an efficient compatible use for a historic structure or landscape through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, and architectural values (NPS DO-28).

Restoration: From a cultural resource perspective, (1) The act or process of accurately depicting the form, features, and character of a historic structure, landscape, or object as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period; (2) The resulting structure, landscape, or object.

From a natural resource perspective, restoration refers to the reestablishment/recovery of biological community structure, natural functions and processes in landscapes that have been disturbed or altered by people — actions taken to return disturbed areas to the natural conditions and processes characteristic of the ecological zone in which the damaged resources are situated.

Landscapes that have been disturbed by natural phenomena, such as floods and hurricanes, generally are allowed to recover naturally in parks unless manipulation is necessary to protect other park resources, developments, or employee and public safety.

Sacred Sites: Certain natural and cultural resources treated by American Indian tribes and Alaska Natives, and Native Hawaiians as sacred places having established religious meaning, and as locales of private ceremonial activities.

Scoping: Includes internal NPS decision-making on issues, alternatives, mitigation measures, the analysis boundary, appropriate level of documentation, lead and cooperating agency roles, available references and guidance, defining purpose and need, and so forth; and external scoping, the early involvement of the interested and affected public.

Section 106: Refers to Section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to take into account the effects of their proposed undertakings on properties included or eligible for inclusion in the National Register of Historic Places and give the Advisory Council on

Historic Preservation a reasonable opportunity to comment on the proposed undertakings.

Soundscape (natural): The aggregate of all the natural, nonhuman-caused sounds that occur in parks, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive, and can be transmitted through air, water, or solid materials.

Structure: Structures are constructed works, usually immovable by nature or design, consciously created to serve some human activity. Examples are buildings of various kinds, monuments, dams, roads, railroad tracks, canals, millraces, bridges, tunnels, locomotives, nautical vessels, stockades, forts and associated earthworks, Indian mounds, ruins, fences, and outdoor sculpture. In the national register program “structure” is limited to functional constructions other than buildings (NPS DO-28).

Stakeholders: Individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected as a result of the project execution /completion. They may also exert influence over the project and its results. For GMP planning purposes, the term stakeholder includes NPS offices/staff as well as public and private sector partners and the public, which may have varying levels of involvement.

Standards: The minimum acceptable condition for an indicator of a desired condition.

Stewardship: The cultural and natural resource protection ethic of employing the most effective concepts, techniques, equipment, and technology to prevent, avoid, or mitigate unacceptable impacts.

Superintendent: The senior onsite NPS official in a park.

Sustainable design: Design that applies the principles of ecology, economics, and ethics to the business of creating necessary and appropriate places for people to visit, live in, and work. Development that has a sustainable design sits lightly upon the land, demonstrates resource efficiency, and promotes ecological restoration and integrity, thus improving the environment, the economy, and society.

Sustainable practices/principles: Those choices, decisions, actions and ethics that will best achieve ecological/ biological integrity; protect qualities and functions of air, water, soil, and other aspects of the natural environment; and preserve human cultures. Sustainable practices allow for use and enjoyment by the current generation, while ensuring that future generations will have the same opportunities.

Traditionally associated peoples: Social cultural entities such as tribes, communities, and kinship units exhibiting a continued identity and associated with a specific park unit, area, or resource.

Unacceptable impacts: Impacts that, individually or cumulatively, would be inconsistent with a park’s purposes or values, or impede the attainment of a park’s desired future conditions for natural and cultural resources as identified through the park’s planning process, or create an unsafe or unhealthful environment for visitors or employees, or diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or unreasonably interfere with park programs or activities, or an appropriate use, or the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park, or NPS concessioner or contractor operations or services.

Universal design: The design of products and environments to be usable by all people to the greatest extent possible, without the need for adaptation or specialized design.

User Capacity: The type and level of use that can be accommodated while sustaining the quality of park resources and visitor opportunities consistent with the purposes of the park unit. It is not necessarily a set of numbers or limits, but rather a process involving establishing desired conditions, monitoring, evaluation, and actions (managing visitor use) to ensure values are protected.

Value analysis/value engineering: An organized, multi-disciplined team effort that analyzes the functions of facilities, processes, systems, equipment, services, and supplies for the purpose of achieving essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality, and safety.

Visitor: Anyone who physically visits a park for recreational, educational or scientific purposes, or who otherwise uses a park’s interpretive and educational services, regardless of where such use occurs (e.g., via Internet access, library, etc.).

Visitor experience: The perceptions, feelings, and reactions a person has while visiting a park. Examples of visitor experiences include: a sense of being immersed in a natural landscape; a feeling of being crowded; a feeling of being in an area where the sights and sounds of people and vehicles are predominant; having a sense of challenge and adventure; or a perception of solitude and privacy.

Zone: See “management zone.”

Appendix A: Enabling Legislation

Kalaupapa National Historical Park Enabling Legislation:

Public Law 95-565

Public Law 100-202

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6. Kalaupapa		
PUBLIC LAW 96-565—DEC. 22, 1980		94 STAT. 3321
Public Law 96-565 96th Congress		
An Act		
To establish the Kalaupapa National Historical Park in the State of Hawaii, and for other purposes.		Dec. 22, 1980 [H.R. 7217]
<i>Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,</i>		Kalaupapa National Historical Park, Hawaii. Establishment. 16 USC 410g.
SEC. 101. In order to provide for the preservation of the unique nationally and internationally significant cultural, historic, educational, and scenic resources of the Kalaupapa settlement on the island of Molokai in the State of Hawaii, there is hereby established the Kalaupapa National Historical Park (hereinafter referred to as the "park").		Purposes. 16 USC 410g-1.
SEC. 102. The Congress declares the following to constitute the principal purposes of the park:		
(1) to preserve and interpret the Kalaupapa settlement for the education and inspiration of present and future generations,		
(2) to provide a well-maintained community in which the Kalaupapa leprosy patients are guaranteed that they may remain at Kalaupapa as long as they wish; to protect the current lifestyle of these patients and their individual privacy; to research, preserve, and maintain the present character of the community; to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features; and to provide for limited visitation by the general public and		
(3) to provide that the preservation and interpretation of the settlement be managed and performed by patient and Native Hawaiians to the extent practical, and that training opportunities be provided such person in management and interpretation of the settlement's culture, historical, educational and scenic resources.		
SEC. 103. The boundaries of the park shall include the lands, waters, and interests therein within the area generally depicted on the map entitled "Boundary Map, Kalaupapa National Historical Park", numbered P07 80024, and dated May 1980, which shall be on file and available for public inspection in the local and Washington, District of Columbia offices of the National Park Service, Department of the Interior. The Secretary of the Interior (hereinafter referred to as the "Secretary") may make minor revisions in the boundary of the park by publication of a revised boundary map or other description to that effect in the Federal Register.		Boundaries: public inspection. 16 USC 410g-2.
SEC. 104. (a) Within the boundary of the park, the Secretary is authorized to acquire those lands owned by the State of Hawaii or by political subdivision thereof only by donation or exchange, and only with the consent of the owner. Any such exchange shall be accomplished in accordance with the provisions of sections 5 (b) and (c) of the Act approved July 15, 1968 (82 Stat. 354). Any property conveyed to the State or a political subdivision thereof in exchange for property within the park which is held in trust for the benefit of Native		Land acquisition. 16 USC 410g-2. 16 USC 460f-22.

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94 STAT. 3322	PUBLIC LAW 96-565—DEC. 22, 1980
48 USC 691.	Hawaiians, as defined in the Hawaiian Homes Commission Act of 1920 shall, as a matter of Federal law, be held by the grantee subject to an equitable estate of the same class and degree as encumbers the property within the preserve; and "available lands" defined in section 203 of the Hawaiian Homes Commission Act may be exchanged in accordance with section 204 of said Act. The vesting of title in the United States to property within the park shall operate to extinguish any such equitable estate with respect to property acquired by exchange within the park.
48 USC 697, 48 USC 698.	(b) The Secretary is authorized to acquire privately-owned lands within the boundary of the park by donation, purchase with donated or appropriated funds, or exchange.
	(c) The Secretary is authorized to acquire by any of the foregoing methods except condemnation, lands, waters and interests therein outside the boundary of the park and outside the boundaries of any other unit of the National Park System but within the State of Hawaii, and to convey the same to the Department of Hawaiian Home Lands in exchange for lands, waters, and interests therein within the park owned by that Department. Any such exchange shall be accomplished in accordance with the provisions defined in subsection (a) of this section.
Administration. 16 USC 410(j)-4, 43 USC 1457, 16 USC 1, 2, 3, 4, 22, 43, 16 USC 461-467.	SEC. 105. (a) The Secretary shall administer the park in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535), the Act of August 21, 1935 (49 Stat. 686), and the provisions of this Act.
	(b)(1) With the approval of the owner thereof, the Secretary may undertake critical or emergency stabilization of utilities and historic structures, develop and occupy temporary office space, and conduct interim interpretive and visitor services on non-Federal property within the park.
Cooperative agreements.	(2) The Secretary shall seek and may enter into cooperative agreements with the owner or owners of property within the park pursuant to which the Secretary may preserve, protect, maintain, construct, reconstruct, develop, improve, and interpret sites, facilities, and resources of historic, natural, architectural, and cultural significance. Such agreements shall be of not less than twenty years duration, may be extended and amended by mutual agreement, and shall include, without limitation, provisions that the Secretary shall have the right of access at reasonable times to public portions of the property for interpretive and other purpose, and that no changes or alterations shall be made in the property except by mutual agreement. Each such agreement shall also provide that the owner shall be liable to the United States in an amount equal to the fair market value of any capital improvements made to or placed upon the property in the event the agreement is terminated prior to its natural expiration, or any extension thereof, by the owner, such value to be determined as of the date of such termination, or, at the election of the Secretary, that the Secretary be permitted to remove such capital improvements within a reasonable time of such termination. Upon the expiration of such agreement, the improvements thereon shall become the property of the owner, unless the United States desires to remove such capital improvements and restore the property to its natural state within a reasonable time for such expiration.
	(3) Except for emergency, temporary, and interim activity as authorized in paragraph (1) of this subsection, no funds appropriated pursuant to this Act shall be expended on non-Federal property unless such expenditure is pursuant to a cooperative agreement with the owner.

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PUBLIC LAW 96-565—DEC. 22, 1980	94 STAT. 3323
(4) The Secretary may stabilize and rehabilitate structures and other properties used for religious or sectarian purposes only if such properties constitute a substantial and integral part of the historical fabric of the Kalaupapa settlement, and only to the extent necessary and appropriate to interpret adequately the nationally significant historical features and events of the settlement for the benefit of the public.	Religious structures.
Sec. 106. The following provisions are made with respect to the special needs of the leprosy patients residing in the Kalaupapa settlement—	Leprosy patients. 16 USC 410j-5
(1) So long as the patient may direct, the Secretary shall not permit public visitation to the settlement in excess of one hundred persons in any one day.	
(2) Health care for the patient shall continue to be provided by the State of Hawaii, with assistance from Federal programs other than those authorized herein.	
(3) Notwithstanding any other provision of law, the Secretary shall provide patients a first right of refusal to provide revenue-producing visitor services, including such services as providing food, accommodations, transportation, tours, and guides.	
(4) Patients shall continue to have the right to take and utilize fish and wildlife resources without regard to Federal fish and game laws and regulations.	
(5) Patients shall continue to have the right to take and utilize plant and other natural resources for traditional purposes in accordance with applicable State and Federal laws.	
Sec. 107. The following provisions are made with respect to additional needs of the leprosy patients and Native Hawaiians for employment and training. (The term "Native Hawaiian" as used in this title, means a descendant of not less than one-half part of the blood of the races inhabiting the Hawaiian Islands previous to the year 1778.)—	Employment and training. 16 USC 410j-6. "Native Hawaiian"
(1) Notwithstanding any other provision of law, the Secretary shall give first preference to qualified patients and Native Hawaiians in making appointments to positions established for the administration of the park, and the appointment of patients and Native Hawaiians shall be without regard to any provision of the Federal civil service laws giving an employment preference to any other class of applicant and without regard to any numerical limitation on personnel otherwise applicable.	
(2) The Secretary shall provide training opportunities for patients and Native Hawaiians to develop skills necessary to qualify for the provision of visitor services and for appointment to positions referred to in paragraph (1).	
SEC. 108 (a) There is hereby established the Kalaupapa National Historical Park Advisory Commission (hereinafter referred to as the "Commission"), which shall consist of eleven members each appointed by the Secretary for a term of five years as follows:	Kalaupapa National Historical Park Advisory Commission. Establishment. Membership. 16 USC 410j-7.
(1) seven members who shall be present or former patients, elected by the patient community, and	
(2) four members appointed from recommendations submitted by the Governor of Hawaii, at least one of whom shall be a Native Hawaiian.	

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94 STAT. 3323	PUBLIC LAW 96-565—DEC. 22, 1980
Chairman, Vacancies.	(b) The Secretary shall designate one member to be Chairman. Any vacancy in the Commission shall be filled in the same manner in which the original appointment was made.
Compensation, Expenses.	(c) A member of the Commission shall serve without compensation as such. The Secretary is authorized to pay the expenses reasonably incurred by the Commission in carrying out its responsibilities under this Act on vouchers signed by the Chairman.
94 STAT. 3324	(d) The Secretary shall consult with and seek the advice of the Commission with respect to the development and operation of the park including training program The Commission shall, in addition, advise the Secretary concerning public visitation to the park, and such advice with respect to numbers of visitors shall be binding upon the Secretary if the Commission certifies to him that such advice is based on a referendum, held under the auspices of the Commission, of all patients on the official Kalaupapa Registry.
Expiration.	(e) The Commission shall expire twenty-five years from the date of enactment of this Act.
Reevaluation, 16 USC 410j-8.	SEC. 109. At such time when there is no longer a resident patient community at Kalaupapa, the Secretary shall reevaluate the policies governing the management, administration, and public use of the park in order to identify any changes deemed to be appropriate.
Appropriation Authorization, 16 USC 410j-9.	SEC. 110. Effective October 1, 1981, there are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this title but not to exceed \$2,500,000 for acquisition of lands and interests in lands and \$1,000,000 for development.
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PUBLIC LAW 96-565—DEC. 22, 1980	94 STAT. 3327
Approved December 22, 1980.	
LEGISLATIVE HISTORY—	
HOUSE REPORT No. 96-1019 (Comm. on Interior and Insular Affairs).	
SENATE REPORT No. 96-1027 (Comm. on Energy and Natural Resources).	
CONGRESSIONAL RECORD, Vol. 126 (1980):	
May 19, considered and passed House.	
Dec. 4, considered and passed Senate, amended.	
Dec. 5, House concurred in Senate amendments.	

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7. Kalaupapa	
PUBLIC LAW 100-202—DEC. 22, 1987	101 STAT. 1329
Public Law 100-202 100th Congress	
Joint Resolution	
Making further continuing appropriations for the fiscal year 1988, and for other purposes.	Dec. 22, 1987 [H.J. Res. 395]
Resolved by the Senate and House of Representatives of the United States of America in Congress assembled.	
AN ACT	101 STAT. 1329-214
Making appropriations for the Department of the Interior and Related Agencies for the fiscal Year ending September 30, 1988, and for other purposes.	
TITLE I—DEPARTMENT OF THE INTERIOR	
NATIONAL PARK SERVICE	101 STAT. 1329-218
OPERATION OF THE NATIONAL PARK SYSTEM	
... Provided further, That notwithstanding any other provision of law, Public Law 96-565 is amended by adding the following at the end of section 104(a): "The Secretary may lease from the Department of Hawaiian Home Lands said trust lands until such time as said lands may be acquired by exchange as set forth herein or otherwise acquired. The Secretary may enter into such a lease without regard to fiscal year limitations."	101 STAT. 1329-220 16 USC 410j-3.
Approved December 22, 1987.	101 STAT. 1329-450
Certified April 20, 1988.	
LEGISLATIVE HISTORY—H.J. Res. 395:	
HOUSE REPORTS: No. 100-415 (Comm. on Appropriations) and No. 100-498 (Comm. of Conference).	
SENATE REPORTS: No. 100-238 (Comm. on Appropriations).	
CONGRESSIONAL RECORD, Vol. 133 (1987):	
Dec. 3, considered and passed House.	
Dec. 11, considered and passed Senate, amended.	
Dec. 21, House and Senate agreed to conference report.	
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 23 (1987):	
Dec. 22, Presidential remarks.	

Appendix B: Pertinent Laws, Policies, and Procedures

Federal Laws Applicable to the National Park System

- Abandoned Shipwreck Act of 1987
- Acid Precipitation Act of 1980
- Act amending the act of October 2, 1968 (commonly called the Redwoods Act)
- Act of August 8, 1953
- Act of February 21, 1925
- Act of June 30, 1864
- Act of June 5, 1920
- Act of March 1, 1872
- Act of May 26, 1930
- Administrative Dispute Resolution Act
- Administrative Procedures Act
- Airport and Airway Development Act of 1970
- Airports In or Near National Parks Act
- Alternative Dispute Resolution Act
- American Folklife Preservation Act of 1976
- American Indian Religious Freedom Act
- Americans with Disabilities Act of 1990
- Antiquities Act of 1906
- Archeological and Historic Preservation Act of 1974
- Archeological Resources Protection Act of 1979
- Architectural Barriers Act of 1968
- Arizona Desert Wilderness Act (contains NPS boundary study provisions)
- Clean Air Act
- Coastal Barrier Resources Act
- Coastal Zone Management Act of 1972
- Comprehensive Environmental Response Compensation and Liability Act (commonly referred to as CERCLA or the Superfund Act)
- Department of Transportation Act of 1966
- Disposal of Materials on Public Lands (Material Act of 1947)
- Emergency Planning and Community Right-to-Know Act of 1986
- Endangered Species Act of 1973
- Endangered Species Conservation Act of 1969
- Energy Independence and Security Act of 2007
- Energy Policy Act of 2005
- Energy Supply and Environmental Coordination Act of 1974
- Estuary Protection Act
- Farmland Protection Policy Act
- Federal Advisory Committee Act
- Federal Aviation Act of 1958
- Federal Cave Resources Protection Act of 1988
- Federal Insecticide, Fungicide, and Rodenticide Act
- Federal Land Policy and Management Act
- Federal Noxious Weed Act of 1974
- Federal Power Act of 1920
- Federal Water Pollution Control Act (commonly referred to as Clean Water Act)
- Federal Water Project Recreation Act
- Fish and Wildlife Coordination Act
- Flood Disaster Protection Act of 1973
- Food Security Act of 1985 (Sodbuster Law)
- Forest and Rangeland Renewable Resources Planning Act of 1974
- Freedom of Information Act
- General Authorities Act, October 7, 1976
- General Mining Act of 1872
- Geothermal Steam Act Amendments
- Geothermal Steam Act of 1970
- Historic Sites Act of 1935
- Intergovernmental Cooperation Act of 1968
- Lacey Act of 1900
- Land and Water Conservation Fund Act of 1965
- Magnuson-Stevens Fishery Conservation and Management Act
- Management of Museum Properties Act of 1955
- Marine Mammal Protection Act of 1972

- Marine Protection, Research, and Sanctuaries Act of 1972 (commonly known as Ocean Dumping Act)
- Migratory Bird Conservation Act
- Migratory Bird Treaty Act
- Mineral Leasing Act for Acquired Lands
- Mineral Leasing Act of 1920 (commonly referred to as Mineral Leasing Act or Mineral Lands Leasing Act)
- Mining in the Parks Act
- Native American Graves and Repatriation Act of 1990
- National Environmental Policy Act of 1969
- National Flood Insurance Act of 1968
- National Historic Preservation Act
- National Invasive Species Act of 1996
- National Park Service Concession Management Improvement Act of 1998
- National Park Service Omnibus Management Act of 1998
- National Park System Concessions Policy Act
- National Park System General Authorities Act (Act to Improve the Administration of the National Park System), August 18, 1970
- National Park System New Areas Studies Act
- National Parks Air Tour Management Act of 2000
- National Parks and Recreation Act, November 10, 1978
- National Parks Overflights Act of 1987
- National Trails System Act
- National Trust Act of 1949
- National Wildlife Refuge System Administration Act of 1966
- Native American Grave Protection and Repatriation Act
- Negotiated Rulemaking Act of 1990
- Noise Control Act of 1972
- NPS Organic Act
- Outdoor Recreation Coordination Act of 1963
- Outer Continental Shelf Lands Act
- Park System Resource Protection Act
- Parks, Parkways, and Recreational Programs Act

Payment in Lieu of Taxes Act
Public Buildings Cooperative Use Act of 1976
Rehabilitation Act of 1973
Reorganization Act of March 3, 1933
Reservoir Salvage Act of 1960
Resource Conservation and Recovery Act of 1976
Revised Statute 2477, Right-of-Way across
Public Lands
Rivers and Harbors Appropriation Act of 1899
Safe Drinking Water Act
Soil and Water Resources
Conservation Act of 1977
Surface Mining Control and
Reclamation Act of 1977
Surface Resources Use Act of 1955
Surface Transportation Assistance Act of 1982
Tax Reform Act of 1976
Telecommunications Act of 1996
Toxic Substances Control Act
Uniform Relocation Assistance and Real Property
Acquisition Policies Act of 1970
Water Resources Planning Act of 1965
Watershed Protection and Flood Prevention Act
Wild and Scenic Rivers Act
Wilderness Act
Wildfire Disaster Recovery Act of 1989

*Executive Orders Applicable
to the National Park System*

Executive Order 11514: Protection and
Enhancement of Environmental Quality
Executive Order 11593: Protection and
Enhancement of the Cultural Environment
Executive Order 11644
Executive Order 11987: Exotic Organisms, 42 FR
26949, Revoked by Executive Order 13112
Executive Order 11988: Floodplain Management

Executive Order 11989 (42 FR 26959) and
11644 (37 FR 2877): Offroad Vehicles
on Public LandsExecutive Order 11990:
Protection of Wetlands
Executive Order 12003: Energy Policy and
Conservation
Executive Order 12088: Federal Compliance with
Pollution Control Standards
Executive Order 12372: Intergovernmental Review
of Federal Programs
Executive Order 12873: Federal Acquisition,
Recycling, and Waste PreventionExecutive
Order 12898: General Actions to Address
Environmental Justice in Minority Populations
and Low-Income Populations
Executive Order 12902: Energy Efficiency and
Water Conservation at Federal Facilities
Executive Order 13006: Locating Federal
Facilities on Historic Properties in our Nation’s
Central Cities
Executive Order 13007: Indian Sacred Sites
Executive Order 13089: Coral Reef Protection
Executive Order 13112: Invasive Species.
Executive Order 13158: Marine Protected Areas
Executive Order 13175: Consultation and
Coordination with Indian Tribal Governments
Executive Order 13186: Responsibilities of Federal
Agencies to Protect Migratory Birds
Executive Order 13352: Facilitation of Cooperative
Conservation
Executive Order 13423: Strengthening
Federal Environmental, Energy, and
Transportation Management
Executive Order 13514: Federal Leadership
in Environmental, Energy, and
Economic Performance
Executive Order 13547: Stewardship of Our
Oceans, Coasts, and Great Lakes

*Policies and Procedures
Applicable to the
National Park System*

Analysis of Impacts on Prime or Unique
Agricultural Lands in Implementing the
National Environmental Policy Act
Code of Federal Regulations
Department of the Interior Secretarial Orders
Federal Wildland Fire Management Policy, 2001
Historic Preservation Certifications Pursuant to
the Tax Reform Act of 1976, the Revenue Act of
1978, the Tax Treatment Extension Act of 1980,
and the Economic Recovery Tax Act of 1981
National Park Service Director’s Orders
National Park Service Management Policies 2006
Policies on Construction of Family Housing for
Government Personnel
Procedures for Interagency Consultation to Avoid
or Mitigate Adverse Effects on Rivers in the
Nationwide Inventory

*State of Hawai‘i Land
Use Regulations*

Land Use Law
Hawai‘i Environmental Impact Statement Law,
Chapter 343, Hawai‘i Revised Statutes
Hawai‘i Coastal Zone Management Act of 1977

**Appendix C: Desired Conditions
from Law and Policy**

The desired conditions described in this section provide the broadest level of direction for management of Kalaupapa National Historical Park and are based on federal laws, executive orders, and NPS management policies.

To understand the implications of the actions described in the alternatives, it is important to describe the laws and policies that underlie the management actions. Many park management directives are required based on law and/or policy and are therefore are not subject to alternative approaches. A GMP is not needed to decide, for instance, that it is appropriate to protect endangered species, control nonnative invasive species, protect archeological sites, conserve artifacts, or provide for universal access—laws and policies already require the NPS to fulfill these mandates. The NPS would continue to implement these requirements with or without a new general management plan.

The National Park System General Authorities Act affirms that while all national park system units remain “distinct in character,” they are “united through their interrelated purposes and resources into one National Park System as cumulative expressions of a single national heritage.” The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, the Redwood Act of 1978 states that NPS management of park units should not “derogat[e] . . . the purposes and values for which these various areas have been established.” The NPS has established policies for all units under its stewardship that are explained in a guidance manual: NPS Management Policies 2006. The alternatives considered in this document incorporate and comply with the provisions of these laws and policies.

The following tables show the most pertinent laws and policies related to planning and managing Kalaupapa National Historical Park. For each topic there are a series of desired conditions required by law and policy that Kalaupapa NHP would continue to work toward under all of the alternatives presented in this general management plan/environmental impact statement (GMP/EIS). The alternatives therefore address the desired future conditions that are not mandated by law and policy and that are appropriate to determine through a planning process. The tables cite the law or policy behind these desired conditions, and give examples of the types of actions being pursued by the NPS at Kalaupapa.



Kalaupapa Settlement, looking east from offshore. Photo courtesy of Damien Museum Archives.

Cultural Resources: Servicewide Laws, Policies and Desired Conditions

Archeological Resources	
Policy Guidance/ Sources: Antiquities Act, 1906 Historic Sites Act, 1935 National Historic Preservation Act, 1966 Protection and Enhancement of the Cultural Environment (Executive Order 11593, 1971) Archeological Resources Protection Act, 1979 Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation, 1983 Curation of Federally Owned and Administered Archaeological Collections (36 CFR 79, 1990) NPS Cultural Resource Management Guideline (Director’s Order 28, 1996) Protection of Historic Properties (36 CFR 800, 2004) NPS Management Policies 2006 State of Hawai‘i Revised Statutes Chapter 6E, Historic Preservation	Desired Conditions: <ul style="list-style-type: none">• Archeological sites are identified and inventoried, their significance is evaluated and documented, and they are in good condition.• Archeological sites are protected in an undisturbed condition unless it is determined through formal processes that disturbance is unavoidable or that ground disturbing research or stabilization is desirable.• When disturbance or deterioration of an eligible property is unavoidable, the site is professionally documented and excavated, and the resulting artifacts, materials, and records are curated and conserved in consultation with the state historic preservation division, resident patient community, and Native Hawaiian organizations.• Some archeological sites that can be adequately protected may be interpreted to the visitor.• Archeological site baseline data are documented and available for park staff. Site conditions are monitored to record changes in resource conditions as a result of environmental conditions or visitor use impacts.• To the extent feasible, archeological resources degraded from environmental conditions and visitor impacts are mitigated through data recovery or other appropriate site treatment techniques.• Archeological resources threatened by project development are mitigated first through avoidance or secondly through other preservation strategies such as data recovery.• Significant archeological sites are nominated for listing in the National Register of Historic Places either individually or in districts. Management Direction/Strategies: <ul style="list-style-type: none">• Continue the process of parkwide archeological survey and inventory until all archeological resources have been identified, documented, and evaluated.• Qualified individuals and organizations conduct archeological fieldwork and research in accordance with the Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation.• Curate archeological collections in accordance with federal standards.• Record all archeological sites, including new discoveries, in the Archeological Sites Management Information System.• Monitor all archeological sites on a regular basis and record their current conditions in the Archeological Sites Management Information System.• Regularly update archeological baseline documents including but not limited to GIS base maps and the archeological overview and assessment.• Protect archeological site locations and other sensitive archeological information and keep confidential as required or appropriate.• Educate visitors on regulations governing protection and conservation of archeological resources.• Partner with colleges, universities, and other appropriate organizations to encourage preservation and appropriate research for the public benefit.

Cultural Landscapes	
Policy Guidance/ Sources: Antiquities Act, 1906 Historic Sites Act, 1935 National Historic Preservation Act, 1966 Protection and Enhancement of the Cultural Environment (Executive Order 11593, 1971) Advisory Council on Historic Preservation’s implementing regulations regarding the Protection of Historic Properties (36 CFR 800, 2004) Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, 1996 NPS Cultural Resource Management Guideline (Director’s Order 28, 1996) NPS Management Policies 2006 State of Hawai‘i Revised Statutes Chapter 6E, Historic Preservation	<p>According to the NPS’s <i>Cultural Resource Management Guideline</i> (DO-28), a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use, reflecting cultural values and traditions.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Cultural landscape inventories are conducted to identify resources potentially eligible for listing in the National Register and to assist in future management decisions for landscapes and associated resources, both cultural and natural.• The management of cultural landscapes focuses on preserving the landscape’s physical attributes, biotic systems, viewshed, and use when that use contributes to its historical significance.• The preservation, rehabilitation, restoration, or reconstruction of cultural landscapes is undertaken in accordance with the <i>Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guideline’s for the Treatment of Cultural Landscapes</i>.• The cultural landscapes of Kalaupapa NHP are managed to retain a high degree of integrity.• Identified and evaluated cultural landscapes are monitored, inspected, and managed to ensure preservation of the contributing resources, qualities, materials, and the historic character defining significance.• Actions identified in cultural landscape reports are implemented, and a record of treatment is added to the reports. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Complete a survey, inventory, and evaluation of cultural landscapes.• Assure all significant cultural landscape resources are preserved in their historic setting and larger environmental context to the degree possible.• Determine the general preservation philosophy for long term stewardship of the cultural landscape through park management plans (such as the GMP).• Prepare a cultural landscape report outlining preservation treatments for the cultural landscape holistically in compliance with the <i>Secretary of the Interior Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>.

Historic Structures	
Policy Guidance/ Sources: National Historic Preservation Act, 1966 Archeological and Historic Preservation Act, 1974 The Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation, 1983 Secretary of the Interior’s Standards for the Treatment of Historic Properties, 1995 NPS Cultural Resource Management Guideline (Director’s Order 28, 1996) National Historic Lighthouse Preservation Act, 2000 NPS Management Policies 2006 Programmatic Agreement among the NPS, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, 2008 State of Hawai‘i Revised Statutes Chapter 6E, Historic Preservation	<p>The National Historic Preservation Act calls for analyzing the effects of possible federal actions on historic structures on, or eligible for, the National Register and for inventorying and evaluating their significance and condition. NPS <i>Management Policies 2006</i> (§5.3.5.4) calls for the treatment of historic structures, including prehistoric ones, to be based on sound preservation practice to enable the long-term preservation of a structure’s historic features, materials, and qualities.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Historic structures are inventoried and their significance and integrity are evaluated.• The qualities that contribute to the listing or eligibility for listing of historic structures on the national register are protected in accordance with the <i>Secretary of the Interior’s Standards and Guidelines for the Treatment of Historic Properties</i>.• Historic structure reports are prepared and existing reports amended as needed. Actions identified in historic structure reports are implemented and a record of treatment added to the reports.• Identified and evaluated historic structures are monitored, inspected and managed to ensure long-term preservation. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Employ the comprehensive maintenance, protection and preservation measures in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties. For properties lacking specific plans, preservation actions would be based on the Secretary of the Interior Standards and NPS policy and guidelines for stabilization of historic resources.• Treat all historic structures as eligible for listing on the National Register of Historic Places pending formal determination by the NPS and State of Hawai‘i Historic Preservation Division.• Create design guidelines and/or historic structure reports for primary building types in Kalaupapa NHP to preserve the architecturalcharacteristics and character-defining features of the buildings. Assure the siting and design for new structures within the NHL are reviewed to assure compliance with the <i>Secretary of the Interior Standards for Treatment of Historic Properties</i>.• Address recurring maintenance activities for significant historic buildings to assure structures remain stable and in good condition.• Document the history of individual buildings through physical investigations, oral histories of individuals, groups, and others who have ties to the park.• Consult with the State of Hawai‘i Historic Preservation Division and the Advisory Council for Historic Preservation (as appropriate) before modifying any historic structure listed in the National Register of Historic Places or the updated NHL nomination form.

Museum Collections	
Policy Guidance/ Sources: Antiquities Act, 1906 Historic Sites Act, 1935 Management of Museum Properties Act, 1955 National Historic Preservation Act, 1966 Archeological and Historic Preservation Act, 1974 American Indian Religious Freedom Act, 1978 Archaeological Resources Protection Act, 1979 Native American Graves Protection and Repatriation Act, 1990 Curation of Federally Owned and Administered Archeological Collections (36 CFR 79, 1990) NPS Cultural Resource Management Guideline (Director’s Order 28, 1996) NPS Management Policies 2006 NPS Museum Collections Management (Director’s Order 24, 2008) NPS Museum Handbook Programmatic Agreement among the NPS, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, 2008 State of Hawai‘i Revised Statutes Chapter 6E, Historic Preservation	<p>NPS <i>Management Policies 2006</i> (§5.3.5.5) states that the NPS “. . .will collect, protect, preserve, provide access to, and use objects, specimens, and archival and manuscript collections. . . in the disciplines of archeology, ethnography, history, biology, geology, and paleontology to aid understanding among park visitors, and to advance knowledge in the humanities and sciences.”</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• All museum collections (objects, specimens, and manuscript collections) are identified and inventoried, catalogued, documented, preserved, protected, and available for access and use for research, interpretation, and exhibits, subject to appropriate limitations, such as for preservation or restricted information.• The qualities that contribute to the significance of collections are protected in accordance with established standards.• Research and development projects include plans for the curation of collected objects and specimens.• Kalaupapa NHP’s museum collections are housed in appropriate facilities that provide protection for current collections and allow for future collection expansion.• Museum collections provide documentation of Kalaupapa NHP’s cultural and natural resources. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Continue to ensure adequate conditions for the climate control of collections and means for fire detection and suppression, integrated pest management, and research and interpretation access are maintained.• Inventory and catalog all park museum collections in accordance with standards in the NPS Museum Handbook.• Develop and implement a collection management program according to NPS standards to guide the protection, conservation, and use of museum objects.• Develop documentation for all specimens in the cultural and natural resource collections.• Ensure that the qualities that contribute to the significance of collections are protected and preserved in accordance with established NPS museum curation and storage standards.• Maintain a curator-of-record.

Values, Traditions, and Practices of Traditionally Associated Peoples (also referred to as ethnographic resources)	
<p>Policy Guidance/ Sources:</p> <p>Antiquities Act, 1906</p> <p>National Historic Preservation Act, 1966</p> <p>National Environmental Policy Act, 1969</p> <p>American Indian Religious Freedom Act, 1978</p> <p>Archaeological Resources Protection Act, 1979</p> <p>Native American Graves and Repatriation Act, 1990</p> <p>Public Access Shoreline Hawai‘i(PASH) 1995</p> <p>NPS Cultural Resource Management Guideline (Director’s Order 28, 1996)</p> <p>NPS Management Policies 2006</p> <p>Nationwide Programmatic Agreement for Section 106 of the National Historic Preservation Act, 2008</p> <p>State of Hawai‘i Revised Statutes Chapter 6E, Historic Preservation</p>	<p>As defined in NPS <i>Management Policies 2006</i>, ethnographic resources are objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated people identifies and explains the places and things they find culturally meaningful. Place based values, traditions, and practices of traditionally associated peoples can be eligible for the National Register of Historic Places as part of traditional cultural properties. Traditionally associated peoples are social/cultural entities such as tribes, communities, and kinship units, as well as park neighbors, traditional residents, and former residents who remain attached to a park area despite having relocated, are “traditionally associated” with a particular park when (1) the entity regards park resources as essential to its development and continued identity as a culturally distinct people; (2) the association has endured for at least two generations (40 years); and (3) the association began prior to establishment of the park.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Appropriate cultural anthropological research is conducted in consultation with groups traditionally associated with Kalaupapa NHP.• To the extent practicable, permitted by law, and consistent with essential agency functions, the NPS accommodates traditionally associated peoples (including but not limited to: patients, kōkua, ‘ohana, and native Hawaiians) access to significant sites, features, objects, and natural resources, and avoids adversely affecting the physical integrity of these resourcesresources.• Traditionally associated peoples linked by ties of kinship or culture to ethnically identifiable human remains, sacred objects, objects of cultural patrimony, and associated funerary objects are consulted when such items may be disturbed or are encountered on park lands.• All traditional cultural properties determined eligible for listing or listed in the National Register of Historic Places are protected. If disturbance of such resources is unavoidable, formal consultation with the State of Hawai‘i Historic Preservation Division, the Advisory Council on Historic Preservation, the Patients Advisory Council, and patients, kōkua, ‘ohana, and native Hawaiian groups as appropriate, is conducted.• The identities of community consultants and information about sacred and other culturally sensitive places and practices are kept confidential according to protocols established in consultation with the affected groups.• Potentially sensitive natural and cultural resources and traditional cultural properties (traditional cultural properties eligible for the National Register of Historic Places) are identified, recorded, and evaluated through consultation with affected groups. The integrity of traditional cultural properties is preserved and protected. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Survey and inventory practices and traditions to assess their significance to traditionally associated people and groups. This could be done in the framework of a potential traditional cultural property.• Treat all traditional cultural properties as eligible for listing in the National Register of Historic Places pending a formal determination by the NPS. <p><i>(continued on next page)</i></p>

Values, Traditions, and Practices of Traditionally Associated Peoples (also referred to as ethnographic resources) <i>(continued)</i>	
	<p>Management Direction/Strategies <i>(continued)</i>:</p> <ul style="list-style-type: none">• As possible under laws and regulations, allow for continued access to and use of resources and areas essential to the survival of family, community, or regional cultural practices.• Exercise reasonable control over the times when and places where specific groups are provided exclusive access to particular areas of the park.• Allow for consumptive use of park resources as provided for in regulations published at 36 CFR 2.1. These regulations allow superintendents to designate certain fruits, berries, nuts, or unoccupied seashells which may be gathered by hand for personal use or consumption if it will not adversely affect park wildlife or the reproductive potential of a plant species, or otherwise adversely affect park resources.• Protect sacred resources to the extent practicable.• Restrict information about the location and character of sacred sites from the public, if disclosure will cause effects, such as invasion of privacy, risk harm to the resource, or impede the use of a traditional religious site by practitioners.• Develop a record about such places in consultation with appropriate groups, and identify any treatments preferred by the groups. This information will alert superintendents and planners to the potential presence of sensitive areas, and will be kept confidential to the extent permitted by law.• Collaborate with affected groups to prepare mutually agreeable strategies for providing access to locales, and for enhancing the likelihood of privacy during religious ceremonies or important cultural events. Any strategies that are developed must comply with constitutional and other legal requirements.• Make accommodations for access to, and the use of, sacred places when interest is expressed by traditionally associated peoples who have a long standing connection and identity with Kalaupapa.• Continue to encourage the employment of native Hawaiians in the NPS to improve communications and working relationships and encourage cultural diversity in the workplace.

Natural Resources: Servicewide Laws, Policies and Desired Conditions

Air Quality	
Policy Guidance/ Sources: Clean Air Act, 1970 Natural Resource Management Guidelines (Reference Manual 77, 1991) NPS Management Policies 2006	<p>Kalaupapa NHP is a Class I air quality area under the Clean Air Act. Class I areas are afforded the highest degree of protection under the Clean Air Act. This designation allows very little additional deterioration of air quality.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Air quality in the park meets national ambient air quality standards for specified pollutants. The park’s air quality is maintained or enhanced with no significant deterioration.• Nearly unimpaired views of the landscape both within and outside the park are present.• Scenic views are substantially unimpaired (as meant by the Clean Air Act).• Kalaupapa NHP management and visitor service activities promote preservation of excellent air quality, including healthful indoor air quality in NPS and concession facilities.• Air quality monitoring within or near Kalaupapa NHP is able to verify whether trends are improving or deteriorating, and whether Class I air quality standards are met within Kalaupapa NHP. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Cooperate with the Hawai’i Department of Land and Natural Resources and the U.S. Environmental Protection Agency to monitor air quality and ensure that park actions do not impair air quality. (Note: The NPS has very little direct control over air quality in the airshed encompassing the national historical park.)• Inventory the air quality-related values (AQRVs) associated with the national historical park. Establish baseline conditions and monitor native plants or other species that may be sensitive indicators of air pollution.• Minimize air pollution emissions associated with park operations, including the use of prescribed fire, management practices, and visitor use activities.• Conduct park operations in compliance with federal, state, and local air quality regulations.• Ensure healthy indoor air quality at NPS facilities.• Participate in federal, regional, and local air pollution control plans and drafting of regulations and review permit applications for major new air pollution sources.• Develop educational programs to inform visitors and regional residents about the threats of air pollution.• Participate in research on air quality and effects of air pollution. Determine changes in ecosystem function caused by atmospheric deposition and assess the resistance and resilience of native ecosystems in the face of these external perturbations.

Ecosystem Communities and Processes	
Policy Guidance/ Sources: Lacey Act, 1900 Endangered Species Act, 1973 Federal Noxious Weed Act, 1974 Natural Resource Management Guidelines (Reference Manual 77, 1991) National Invasive Species Act, 1996 Invasive Species, Executive Order 13112, 1999 NPS Management Policies 2006	<p>Desired Conditions:</p> <ul style="list-style-type: none">• Kalaupapa NHP is managed holistically, as part of a greater ecological, social, economic, and cultural system.• Managers seek to maintain all components and processes of naturally evolving park ecosystems. Natural disturbance and change are recognized as an integral part of the functioning of natural systems.• Natural abundance, diversity, dynamics, distribution, and habitat of native plant and animal populations are preserved and restored.• Potential threats to the park’s native plants and wildlife are identified early and proactively addressed through mitigation measures.• Sources of air, water, and noise pollution and visitor uses adversely affecting plants and animals are limited to the greatest degree possible.• In collaboration with landowners inside and outside Kalaupapa NHP, watersheds within and adjacent to the park are protected.• Visitors and staff recognize and understand the value of the park’s native plants and wildlife and the role that surrounding landscapes play in habitat connectivity.• NPS staff uses the best available scientific information and technology to manage these resources.• State and federally listed threatened and endangered species and their habitats that are critical to maintain ecosystem processes are protected and sustained. NPS staff prevents the introduction of nonnative species and provides for their control to minimize the economic, ecological, and human health impacts that these species cause. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Continue to inventory and monitor plants and animals in the park. Collected data will be used to monitor the distribution, abundance, and condition of selected species, including indicators of ecosystem condition and diversity, rare and protected species, and nonnative species. Management plans will be modified to be more effective, based on the results of monitoring.• Participate in regional ecosystem efforts and develop methods to restore native species and ecosystem processes.• Support research that contributes to management of ecosystem processes.• Minimize and mitigate negative human impacts on native plants, animals, and ecosystem processes.• Rely upon natural processes whenever possible to maintain native plant and animal species and to influence natural fluctuations in populations of these species.• Protect a full range of genetic types (genotypes) of native plant and animal populations in the park by perpetuating natural evolutionary processes and minimizing human interference with evolving genetic diversity.• Manage populations of exotic plant and animal species using integrated pest management techniques, up to and including eradication, when control is prudent and feasible.• Work cooperatively with other public and private land managers to conserve open space connectivity and native species, both common and rare. Work cooperatively with park neighbors regarding best management practices inside and outside the park to conserve native species and habitats.• Avoid, minimize, or otherwise mitigate any potential impacts on state or federally listed species. Should it be determined through informal consultation that an action might adversely affect a federally listed or proposed species, NPS staff would initiate formal consultation with the U.S. Fish and Wildlife Service or NOAA under Section 7 of the Endangered Species Act.• Provide interpretive and educational programs about the preservation of native species, ecosystem processes, “ecological services,” and methods to sustain these.

Fire Management	
Policy Guidance/ Sources: Wilderness Preservation and Management (Director’s Order 41, 1999) Federal Wildland Fire Management Policy, 2001 NPS Management Policies 2006 Wildland Fire Management (Director’s Order 18 and Reference Manual 18, 2008)	Desired Conditions: <ul style="list-style-type: none">• Fire management programs are designed to meet resource management objectives prescribed for the various areas of Kalaupapa NHP and to ensure that the safety of firefighters, patient community, staff, and the public is not compromised.• All wildland fires are effectively managed, considering resource values to be protected and firefighter and public safety, using the full range of strategic and tactical operations as described in an approved fire management plan.• Natural fire regimes are restored and maintained, but will be modified to comply with air quality regulations, and/or to protect listed species, cultural resources, and the safety of life and property.• The best available technology and scientific information are used to manage fire within Kalaupapa NHP, to conduct routine monitoring to determine if objectives are met, and to evaluate and improve the fire management program.• Kalaupapa NHP managers develop a comprehensive cross-boundary fire management plan with adjacent land managers, recognizing fire as a natural process that does not acknowledge administrative boundaries.• Other fire management program goals and objectives from the 2011 fire management plan for Kalaupapa NHP include enhancing the firebreak around the settlement of Kalaupapa and utilizing strategically arranged areas of fuel reduction to reduce fire hazard across the peninsula and within the settlement. Management Direction/Strategies: <ul style="list-style-type: none">• Maintain a current fire management plan to reflect the most recent fire policy, managed fire applications, and the body of knowledge on fire effects within the unit’s vegetation types.• Maintain cooperative agreements for fire suppression with appropriate federal, state, and local agencies and organizations.• Monitor individual prescribed fires to provide information on whether specific objectives regarding smoke behavior, fire effects, etc. are met.• Conduct fire history research and other studies to describe Kalaupapa NHP’s natural fire regime.• Conduct research and monitor the effects of fires in Kalaupapa NHP to ensure that long-term resource objectives are met.• Controlled burns are used as possible and appropriate to reduce invasive vegetation and reestablish native communities.• Fire protection zones are established to create defensible space around primary historic structures.

Geologic and Soil Resources	
Policy Guidance/ Sources: Mining in the Parks Act, 1976 Federal Cave Resources Protection Act, 1988 Natural Resource Management Guidelines (Reference Manual 77, 1991) NPS Management Policies 2006	Desired Conditions: <ul style="list-style-type: none">• The national historical park’s geologic and soil resources are preserved and protected as integral components of its natural systems. Natural geological processes are unimpeded.• The NPS actively seeks to understand and preserve the soil resources of Kalaupapa NHP, and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or the soil’s contamination of other resources. Management Direction/Strategies: <ul style="list-style-type: none">• Assess the impacts of natural processes and human-related events on geologic resources.• Integrate geologic resource management into NPS operations and planning to maintain and restore the integrity of geologic resources.• Develop programs to educate visitors about geologic resources.• Update geologic interpretations of localities that are the subject of interpretive venues.• Collect baseline information on surficial geology.• Partner with the U.S. Geological Survey (USGS) and others to inventory geologic resources, conduct research, and identify and monitor geologic hazards.• Update geologic map of Kalaupapa National Historical Park in digital format that can be used in GIS applications.• Update geologic history of the peninsula using modern theory and techniques.

Lightscape Management/ Dark Night Sky	
Policy Guidance/ Sources: NPS Management Policies 2006 Clean Air Act, 1970 (air quality related value) The Green Parks Plan, Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings Guidance, 2011	<p>NPS <i>Management Policies 2006</i> (§4.10) recognizes that natural lightscales are natural resources and values that exist in the absence of human-caused light. Natural lightscales contribute to positive visitor experiences and natural resource processes. The policy further states that the NPS staff will seek to minimize the intrusion of artificial light into the night scene. In natural areas, artificial outdoor lighting will be limited to meet basic safety requirements and will be shielded when possible.</p> Desired Conditions: <ul style="list-style-type: none">• Natural darkness and other components of the natural lightscape in Kalaupapa NHP are protected.• Artificial light sources both within and outside the national historical park does not adversely impact the natural lightscape or affect opportunities to see the night sky. Management Direction/Strategies: <ul style="list-style-type: none">• Cooperate with visitors, neighbors, and local government agencies to find ways to prevent or minimize the intrusion of artificial light into Kalaupapa NHP.• Limit artificial lighting in the park to basic safety requirements and where possible.• Evaluate impacts on the night sky caused by park facilities. If light sources within the park are affecting night skies, alternatives such as shielding lights, redirecting lights, changing lamp types, or eliminating unnecessary light sources would be used.• Interpretive programs and materials will be provided to help visitors understand the role and value of natural lightscape.

Marine Resources	
Policy Guidance/ Sources: Rivers and Harbors Act, 1899 Clean Water Act, 1972 Coastal Zone Management Act, 1972 Hawai'i Coastal Zone Management Act, 1977 Marine Protected Areas (Executive Order 13158, 2000) Stewardship of Our Oceans, Coasts, and Great Lakes (Executive Order 13547, 2010) NPS Ocean Park Stewardship Action Plan, 2006 NPS Management Policies 2006 NPS Pacific Ocean Parks Strategic Plan, 2007	<p>Marine resources are at risk due to a variety of threats, including invasive species, excessive resource use, pollution, and changes in ocean temperature and chemistry as a result of global climate change. Coastal habitats are important for the preservation of several rare and endangered species, such as the Hawaiian monk seal, humpback whale, green sea turtle, and Hawaiian spinner dolphin, in addition to well-preserved reef communities of coral, fish, and invertebrates.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Marine resources are managed from an ecosystem perspective, considering both internal and external factors affecting visitor use, environmental quality, and resource stewardship.• Park management demonstrates leadership in resource stewardship and conservation of ecosystem values.• Management decisions about ecosystems are based on scientific information and acceptable indigenous practices.• Pollution prevention and protection of water quality to meet the needs of aquatic organisms are priorities.• Communicate an ocean stewardship message to visitors, park staff, and the public. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Develop and implement a marine management plan, which includes pollution prevention and environmental best management practices.• Through collaboration with other agencies and organizations, the park will continue to conduct and support regional baseline inventories, monitoring, and mapping of marine resources.• Park staff in collaboration with other agencies will continue to document and monitor physical processes influencing marine resources.• Park staff will identify and quantify threats to marine resources, including those associated with invasive species, resource extraction, land- and water-based activities, and climate change.• Consider the establishment of sensitive resource zones and special closure areas in consultation with DLNR, the local community, and stakeholders. The park will protect the most sensitive biological resources from disturbance.• Park staff would work to inform visitors about the value of coastal areas, preservation of marine resources, and water quality in the watershed through a variety of interpretive media to increase protection and awareness of these resources.

Soundscapes	
Policy Guidance/ Sources: Executive memorandum signed by President Clinton on April 22, 1996 Sound Preservation and Noise Management (Director’s Order 47, 2000) NPS Management Policies 2006 National Parks Air Tour Management Act, 2000 National Parks Overflight Act of1987 36 CFR 2.1 -Audio Disturbance	<p>An important component of NPS management is to preserve or restore the natural sounds associated with national park system units. The sounds of nature are among the intrinsic elements that combine to form the environment of national park system units. Park natural soundscape resources encompass all the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes. Natural sounds occur within and beyond the range of sounds that humans can perceive, and they can be transmitted through air, water, or solid materials.</p> <p>Cultural soundscapes are also important resources and values in many parks. The NPS protects opportunities for appropriate transmission of cultural and historic sounds that are fundamental to the purposes and values of the park.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• The NPS preserves the natural ambient soundscapes, restores degraded soundscapes to the natural ambient condition wherever possible.• The NPS protects natural soundscapes from degradation due to noise.• Noise from park operations or recreational uses is minimized using the best available technology and methods to provide a high-quality visitor experience and protect biological resources and processes that involve natural sounds (for example species that use sound to attract mates, protect territories, locate prey, navigate, or avoid predators).• Visitors have opportunities to experience and understand natural soundscapes.• The soundscape contributes to a contemplative, reverent, and reflective setting at Kalaupapa.• Kalaupapa NHP maintains a library of baseline ambient sound levels and, as feasible, monitors key locations for maintaining natural soundscapes.• Ecological interactions that depend upon or are affected by sound are protected. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Take actions to monitor and minimize or prevent unnatural sounds that adversely affect park resources and values, including visitors’ enjoyment.• Require NPS staff, concessioners, and contractors to comply with measures designed to reduce noise levels.• Consider noise in the procurement and use of equipment within the national historical park.• Consult and make recommendations to the Federal Aviation Administration regarding any proposed changes to current Air Tour regulations designed to protect privacy of patient community at Kalaupapa.• Monitor and ensure compliance with Programmatic Agreement with Marines that restricts any increase in 2012 levels of military air flight training exercises at the Kalaupapa Airport.• Encourage visitors to respect the sacredness and spirituality of Kalaupapa by reducing unnecessary noise.• Provide interpretive programs and materials to help visitors understand the role and value of natural soundscapes.

Scenic Resources	
Policy Guidance/ Sources: NPS Organic Act, 1916 NPS Management Policies, 2006	Desired Conditions: <ul style="list-style-type: none">• The scenic views at Kalaupapa NHP continue to stir imaginations, inspire, and provide opportunities for visitors to understand, appreciate, and forge personal connections to the peninsula.• Intrinsically important scenic vistas and scenic features are not significantly diminished by development. Management Direction/Strategies: <ul style="list-style-type: none">• Park operations and projects will preserve scenic viewsheds and scenic vistas.• NPS staff will work with adjacent and nearby landowners to minimize any visual impacts from nearby developments and to ensure that developments do not encroach on Kalaupapa NHP.

Water Resources	
Policy Guidance/ Sources: Rivers and Harbors Act, 1899 Protection and Enhancement of Environmental Quality (Executive Order 11514, 1970) Clean Water Act, 1972 Federal Compliance with Pollution Control Standards (Executive Order 12088, 1978) Natural Resource Management Guidelines (Reference Manual 77, 1991) NPS Management Policies 2006	<p>NPS <i>Management Policies 2006</i> (§4.6.1, 4.6.2) calls for the NPS to perpetuate surface and groundwater as integral components of park aquatic and terrestrial ecosystems. “Natural Resource Management Reference Manual #77” provides further direction on the management of water quantity in parks, stating the NPS will manage and use water to protect resources, accommodate visitors, and administer park units within legal mandates. The Clean Water Act strives to restore and maintain the integrity of U.S. waters, which includes waters found in national parks.</p> Desired Conditions: <ul style="list-style-type: none">• Surface water and groundwater are protected, and water quality meets or exceeds all applicable water quality standards.• NPS and NPS-permitted programs and facilities are maintained and operated to avoid pollution of surface water and groundwater.• Water resources in Kalaupapa NHP meet or exceed all federal and state water quality standards for temperature, bacteria, dissolved oxygen, turbidity, toxic substances, pH, and nutrients.• Pollution prevention and protection of water quality to meet the needs of freshwater and marine aquatic organisms are priorities. Management Direction/Strategies: <ul style="list-style-type: none">• Develop and implement an environmental management plan, which includes pollution prevention and environmental best management practices.• Promote water conservation by the NPS, partners, visitors, and park neighbors.• Apply best management practices to reduce pollution-generating activities and facilities in Kalaupapa NHP.• Minimize the use of pesticides, fertilizers, and other chemicals, and manage them in keeping with NPS policy and federal regulations.• Manage stormwater runoff appropriately.• Promote greater public understanding of water resource issues at Kalaupapa NHP and encourage public support for and participation in protecting watersheds.

Wetlands	
Policy Guidance/ Sources: Rivers and Harbors Act, 1899 Protection and Enhancement of Environmental Quality (Executive Order 11514, 1970) Clean Water Act, 1972 Protection of Wetlands (Executive Order 11990, 1977) Natural Resource Management Guidelines (Reference Manual 77, 1991) Wetland Protection (Director’s Order 77-1 and accompanying procedural manual, 2002) NPS Management Policies 2006	Desired Conditions: <ul style="list-style-type: none">• Natural and beneficial conditions of wetlands are preserved and enhanced.• The NPS implements a “no net loss of wetlands” policy and strives to achieve a longer-term goal of net gain of wetlands across the national park system through the restoration of previously degraded wetlands.• To the extent possible, the NPS avoids long- and short-term adverse impacts associated with the destruction or modification of wetlands, and avoids direct or indirect construction in wetlands wherever there is a practicable alternative.• The NPS compensates for remaining unavoidable adverse impacts on wetlands by restoring wetlands that have been previously degraded.• Species that depend upon wetland habitats occur in sustainable numbers.• Park visitors have the opportunity to learn about and understand the unique services and functions provided by wetlands.• Wetlands near developed areas remain unaffected by maintenance of park or concession facilities or management or recreational activities.• Wetlands adversely affected by prior human activity are restored where feasible. Management Direction/Strategies: <ul style="list-style-type: none">• Wetlands within Kalaupapa NHP are inventoried and their conditions monitored. The distinct functions they perform are identified.• Locate any new facilities if needed, or relocate existing facilities to avoid impacting wetlands if feasible. If avoiding wetlands is not feasible, undertake other actions to comply with Executive Order 11990 “Protection of Wetlands,” the Clean Water Act, and Director’s Order 77-1 “Wetland Protection,” such as compensation.• Prepare a statement of findings if proposed actions would result in adverse impacts on wetlands, including an analysis of alternatives, delineation of the wetland, a wetland restoration plan, mitigation, and a functional analysis of the impact site and restoration sites.• Restore degraded wetlands by removing invasive species and obstructions to natural water movements.• Encourage the use of wetlands for educational and scientific purposes that do not disrupt natural wetland functions.• Participate in collaborative planning efforts with adjacent land managers and other associated groups to protect and restore wetlands within and outside the boundaries through cooperative conservation strategies.

Wild and Scenic Rivers, Rivers, and Floodplains	
Policy Guidance/ Sources: Wild and Scenic Rivers Act of 1968 Executive Order 11988, “Floodplain Management” NPS Director’s Order 77-2 NPS Management Policies 2006	<p>The Wild and Scenic Rivers Act (Act), passed in 1968, protects the free-flowing waters of many of our nation’s greatest rivers, while also recognizing the potential for appropriate use and development. The Act ensures the public’s enjoyment of the river and its resources for present and future generations. Floodplains are protected and managed in accordance with Executive Order 11988 “Floodplain Management,” NPS Director’s Order 77-2 and its accompanying procedural manual, and NPS <i>Management Policies 2006</i> (§4.6.4).</p> <p>Desired Conditions: Management actions and visitor uses do no inhibit the natural free flowing conditions of rivers and streams.</p> <ul style="list-style-type: none">• When it is not practicable to locate or relocate development or inappropriate human activities to a site outside the floodplain or tsunami hazard zone, the National Park Service :<ul style="list-style-type: none">• prepares and approves a statement of findings in accordance with Director’s Order #77-2• uses nonstructural measures as much as practicable to reduce hazards to human life and property while minimizing impacts on the natural resources of floodplains• ensures that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR 60) <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Identify 100-year and 500-year floodplains and any administrative, maintenance, operational, or visitor facilities located within them.• Develop a program to protect these facilities using the most current techniques that minimize adverse effects on aquatic and riparian habitats and fluvial processes.• Recognize that native Hawaiian archeological features, such as lo’i, are part of the significance of stream systems.• Manage significant prehistoric and historic properties to protect cultural and scientific values and to educate visitors about the system’s cultural history.• Work with area partners, including federal, state, and county agencies, and others, to develop restoration plans for at-risk river systems. Use current technologies, over time, to restore or improve floodplain and riparian functions such as removing invasive species.• If facilities are damaged or destroyed by a hazardous or catastrophic natural event, thoroughly evaluate options for relocation or replacement at a different location. If a decision is made to relocate or replace a severely damaged or destroyed facility, it will be placed, if practicable, in an area believed to be free from natural hazards.• Prepare evacuation plans for facilities in flood or tsunami hazard areas.• Protect shoreline areas along rivers that provide spawning, feeding, and rearing habitats for fish and support rare aquatic plant species.• When emergency situations occur, consult with traditionally associated peoples of that area to evaluate the potential impact of the proposal and consider traditionally associated people’s views in the decision-making process. Protocols for consultation would be developed when needed.

Visitation: Servicewide Laws, Policies, and Desired Conditions

Visitor Experience	
Policy Guidance/ Sources: NPS Organic Act, 1916 Architectural Barriers Act (ABA), 1968 Americans with Disabilities Act, 1990 Accessibility for Visitors with Disabilities (Director’s Order 42, 2000) Interpretation and Education (Director’s Order 6, 2005) NPS Management Policies 2006 Law Enforcement (Director’s Order 9, 2005, Reference Manual 9, 2009) Programmatic Access Guidelines for NPS Interpretive Media, February 2012 NPS Servicewide Interdisciplinary Strategic Plan for Interpretation, Education, and Volunteers, 2013-2016 (draft)	<p>The NPS Organic Act, NPS General Authorities Act, and NPS <i>Management Policies</i> (2006) (§1.4, 8.1) all address the importance of national park units being available to all people to enjoy and experience. Current laws, regulations, and policies leave considerable room for judgment about the best mix of types and levels of visitor use activities, programs, and facilities. For this reason, most decisions related to visitor experience are addressed in the alternatives, however, all visitor use of the national park system must be consistent with the following guidelines.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Park resources are conserved “unimpaired” for the enjoyment of future generations.• Visitors have enjoyment opportunities that are uniquely suited and appropriate to the natural and cultural resources in the park; opportunities continue to be provided for visitors to understand, appreciate, and enjoy the park within its regional context.• Visitors have opportunities to understand and appreciate the significance of the park and its resources, and to develop a personal stewardship ethic. Interpretive and educational programs build public understanding of and support for such decisions and initiatives, for the NPS mission, and for Kalaupapa National Historical Park.• Visitors will have opportunity for participatory experiences that promote stewardship and provide relevant, inclusive, and active learning experiences.• To the extent feasible, all programs, services, and facilities in the park are accessible to and usable by all people, including those with disabilities.• For all zones or districts in Kalaupapa NHP, the types and levels of visitor use are consistent with the desired resource and visitor experience conditions prescribed for those areas.• The level and type of commercial guided activities is managed to protect resources and the visitor experience. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Provide visitors with easy access to the information they need to have a safe and enjoyable experience through information and orientation programs.• For all zones, districts, or other logical management divisions in Kalaupapa NHP, identify visitor carrying capacities for managing public use and ways to monitor for and address unacceptable impacts on resources and visitor experiences.• Provide both on- and off-site interpretive programs that are designed to encourage visitors to form their own intellectual or emotional connections with the resource. Interpretive programs facilitate a connection between the interests of visitors and the meanings of the park.• Design curriculum-based educational programs that link park themes to national standards and state curricula and involve educators in planning and development. These programs would include pre-visit and post visit materials, address different learning styles, include an evaluation mechanism, and provide learning experiences that are linked directly to clear objectives. Programs would develop a thorough understanding of a park’s resources in individual, regional, national, and global contexts.• Develop interpretive media that provide visitors with relevant park information and facilitate more in-depth understanding of and personal connection with park stories and resources. This media will be continually maintained for both quality of content and condition based upon established standards.• Integrate resource issues and initiatives of local and national importance into the interpretive and educational programs.• Modifications for access are assessed in consideration to and following the Secretary of Interior’s Standards for Historic Preservation.• Fully integrate programmatic and physical access to ensure equal access by people with disabilities.• Provide special, separate, or alternative facilities, programs, or services only when existing ones cannot reasonably be made accessible.

Operations: Servicewide Laws, Policies, and Desired Conditions

Climate Change, Sustainability, and Sustainable Facility Design	
Policy Guidance/ Sources: Federal Acquisition, Recycling, and Waste Prevention (Executive Order 12873, 1993) Energy Efficiency and Water Conservation at Federal Facilities (Executive Order 12902, 1994) Evaluating Climate Change Impacts in Management Planning (DOI Secretarial Order 3226, 2001) Sustainable Design and Construction Practices (Pacific West Region Directive PW-048, 2001) Energy Policy Act, 2005 NPS Management Policies 2006 Energy Independence and Security Act, 2007 Strengthening Federal Environmental, Energy, and Transportation Management (Executive Order 13423, 2007) Federal Leadership in Environmental, Energy, and Economic Performance (Executive Order 13514, 2009) <i>(continued on next page)</i>	Desired Conditions: Kalaupapa National Historical Park is managed in accordance with the nine goals articulated in the Green Parks Plan. The Green Parks Plan defines a collective vision for integrating environmental stewardship into facility management, and for educating park staff and visitors about climate change and sustainability in a manner consistent with the mission of the NPS, as well as all relevant laws, Executive Orders, and Secretarial and Director’s orders. The goals are: <ol style="list-style-type: none">1. Environmental Compliance2. Climate Change Mitigation and Facility Adaptation3. Energy Management4. Water Management5. Fleet and Transportation Management6. Environmental Purchasing and Waste Reduction/Management7. Healthy Indoor Environments8. Outdoor Environmental Quality and Sustainable Sites9. Best Practices in Sustainable Facility Management and Use Based on the nine Green Parks Plan goals, Kalaupapa NHP would: <ul style="list-style-type: none">• Fully embrace stewardship of Kalaupapa’s natural environment through federal, DOI, and NPS policies and regulations, and educational opportunities;• Respond to the challenges of climate change by reducing CO₂ emissions within the park, protecting natural ecosystem processes to ensure ecological resilience, and mitigating impacts to coastal structures;• Strive toward energy independence;• Protect all terrestrial and coastal waters, and regulate water usage;• Greatly reduce fleet reliance on fossil fuels;• Embrace green purchasing and waste reduction;• Provide healthy indoor environments in all facilities;• Implement sustainable operations and new development planning;• Manage historic and contemporary facilities compatibly with their surrounding natural and cultural landscapes. <i>(continued on next page)</i>

Climate Change, Sustainability, and Sustainable Facility Design <i>(continued)</i>	
Policy Guidance/ Sources <i>(continued)</i>: Addressing the Impacts of Climate Change on America’s Water, Land and Other Natural and Cultural Resources (DOI Secretarial Order 3289, 2009) NPS Climate Change Response Strategy, 2010 The Green Parks Plan, Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings Guidance, 2011 Secretary of the Interior’s Standards for Rehabilitation and Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings General Services Administration Sustainable Design National Institute of Building Sciences, Whole Building Design Guide	Potential Management and Implementation Strategies: <ul style="list-style-type: none">• NPS would collaborate with other governmental agencies, Native Hawaiian groups, private landowners, and other organizations and individuals to protect the park and the broader natural environment. This includes conservation of species, natural communities, lands, and water quality to promote ecological resilience and biological carbon sequestration.• NPS would train staff in environmental leadership and sustainability.• NPS would model sustainable practices that lead by example, using programs, presentations, workshops, and hands-on activities.• Potential climate change impacts would be factored into all planning exercises, priority-setting for scientific research and investigations, and for natural and cultural resource activities.• NPS would monitor and document climate change parameters in the park, including meteorological and sea level changes.• The Cultural Resources program would document, protect, and potentially move or abandon architectural, archeological and other cultural resources due to climate change impacts such as sea level rise.• The Natural Resources program would monitor and document climate change impacts on species migrations and extinctions, invasive species, and species adaptations.• NPS would participate in the Climate Friendly Parks program.• NPS would strive to achieve “net zero energy” performance for the buildings and site through building retrofits, energy conservation, and the implementation of on-site renewable energy sources such as photovoltaic and wind.• By 2020, the NPS would reduce the park’s carbon footprint by 20% below 2008 levels.• With park partners, the NPS would implement projects and activities that conserve and protect the streams, wetlands, coastal waters, and potable water sources of the Kalaupapa peninsula. Assess all aspects of water use, including lawns and garden irrigation, the potential use of graywater, and the use of native and climate-appropriate vegetation.• NPS would strive to minimize, and eventually eliminate, the use of fossil fuel-driven modes of transportation except for special needs equipment.• NPS would promote walking and cycling when possible.• The reduction, re-use, and recycling of materials would be promoted, while the purchase and use of materials and products that are nondurable, environmentally detrimental, or that require transportation from outside Hawai’i would be avoided whenever possible.• Through energy management, natural ventilation, and green product purchasing, the NPS would provide sustainable, healthy indoor environments for all staff, residents, and visitors.• NPS would perform value analyses and value engineering, including life cycle analyses to examine the energy, environmental, and economic implications of proposed facility changes and developments.• The adaptive re-use and rehabilitation of existing structures would be preferred over new construction. Sustainable location and site development practices for new construction would be implemented. The NPS would use best management practices to keep historic facilities harmonious with the park’s historic character, compatible with natural processes, energy efficient, functional, cost-effective, and in compliance with accessibility and historic preservation laws and guidelines.• NPS would use suppliers and contractors that follow sustainable practices and promote the use of construction materials that resist insect damage and corrosion.• Provide interpretive and educational programs to park staff and visitors about climate change and NPS efforts to mitigate impacts in a sustainable manner.

Public Health and Safety	
Policy Guidance/ Sources: Federal Acquisition, Recycling,and Waste Prevention (Executive Order 12873, 1993) Energy Efficiency and Water Conservation at Federal Facilities (Executive Order 12902, 1994) OSHA Regulations (29 CFR) NPS Management Policies 2006 Emergency Medical Services (Director’s Order 51, 2005 and Reference Manual 51, 2009) Hazard and Solid Waste Management (Director’s Order 13A and 13B)	<p>NPS <i>Management Policies 2006</i> (§8.2.5) states that the saving of human life would take precedence over all other management actions as the NPS strives to protect human life and provide for injury-free visits.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Kalaupapa NHP and its partners, contractors, and cooperators work together to provide a safe and healthful environment for all, while applying nationally accepted standards and while recognizing that there are limitations on the NPS’s capability to eliminate all hazards.• Consistent with mandates and nonimpairment, the park would reduce or remove known hazards by applying appropriate mitigation measures, such as closures, guarding, gating, education, and other actions. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• Maintain a documented safety program in the park to address health and safety concerns and to identify appropriate levels of action and activities to reduce or eliminate safety hazards.• Incorporate operational leadership strategies and concepts in to common practice to promote a safe environment.• Ensure that all potable water systems and wastewater systems in the park continue to meet state and federal requirements.• Provide interpretive signs and materials as appropriate to notify visitors of potential safety concerns, hazards and procedures; to help provide for a safe visit to the park; and to ensure visitors are aware of the possible risks of certain activities.

Relations with Private and Public Organizations, Owners of Adjacent Land, and Governmental Agencies	
Policy Guidance/ Sources: NPS Management Policies 2006	<p>The NPS <i>Management Policies 2006</i> (§1.6) stresses the need for cooperative conservation beyond park boundaries. This cooperation is necessary in order for the NPS to fulfill its mandate to preserve the park’s natural and cultural resources unimpaired for future generations. Local and regional cooperation may involve other federal agencies, state, and local governments, neighboring landowners, and nongovernmental and private sector organizations.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Kalaupapa NHP is managed as part of a greater ecological, social, economic, and cultural system.• Good relations are maintained with residents and adjacent landowners, religious organizations in the park, and private and public groups that affect, and are affected by Kalaupapa NHP.• Kalaupapa NHP is managed proactively to resolve external issues and concerns and ensure that the resources and values of Kalaupapa NHP are not compromised.• Because Kalaupapa NHP is an integral part of a larger regional and islandwide environment, the NPS works cooperatively with others to anticipate, avoid, and resolve potential conflicts, protect Kalaupapa resources, and address mutual interests in the quality of life for community residents. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• NPS staff would continue to establish and foster partnerships with public and private organizations to achieve the purpose of Kalaupapa NHP. Partnerships would continue to be sought for resource protection, research, education, and visitor enjoyment purposes.• To foster a spirit of cooperation with neighbors and encourage compatible adjacent land uses, NPS staff would continue to keep landowners, land managers, local governments, and the public informed about management activities. Periodic consultations would continue with residents and landowners who might be affected by visitors and management actions.• NPS staff would continue to respond promptly to conflicts that arise over NPS activities, visitor access, and proposed activities and developments on adjacent lands that could affect Kalaupapa NHP.• NPS staff may provide technical and management assistance to landowners to address issues of mutual interest. NPS staff would continue to work closely with adjacent landowners, local, state, and federal agencies, Kalaupapa NHP Advisory Commission, and other groups whose programs affect, or are affected by, activities in Kalaupapa NHP.• NPS managers would continue to pursue cooperative regional planning whenever possible to integrate the unit into issues of islandwide concern.

Transportation to and within Kalaupapa NHP	
Policy Guidance/ Sources: NPS Management Policies 2006	<p>NPS <i>Management Policies 2006</i> (§9.2) calls for NPS managers to identify solutions to transportation issues that preserve natural and cultural resources while providing a high-quality visitor experience. Management decisions regarding transportation generally require a comprehensive alternatives analysis. The location, type, and design of multimodal transportation facilities (such as roads, bridges, parking areas, side-walks, bikeways, and pedestrian trails) strongly influence the quality of the visitor experience and the preservation of park unit resources.</p> <p>Desired Conditions: Transportation facilities in Kalaupapa NHP preserve the integrity of the surroundings within a National Historic Landmark; respect ecological processes; protect natural, cultural, and scenic resources; and provide the highest visual quality and a rewarding visitor experience.</p> <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• NPS staff would participate in transportation studies and planning processes that may result in links to Kalaupapa NHP or impacts to resources. NPS managers would work closely with other federal agencies, state and local governments, regional planning bodies, citizen groups, and others to enhance partnering and funding opportunities, and to encourage effective regional transportation planning.• In general, the preferred modes of transportation would be those that contribute to maximum visitor enjoyment of, and minimum adverse impacts to, resources and values. Before a decision is made to design, construct, expand, or upgrade transportation access to or within Kalaupapa NHP, non-construction alternatives—such as distributing visitors to alternative locations—would be fully explored. If non-construction alternatives would not achieve satisfactory results, then a development solution should consider whether the project:<ul style="list-style-type: none">• is appropriate and necessary to meet management needs• is designed with extreme care and sensitivity to the landscape through which it passes• would not cause adverse impacts to natural and cultural resources, and would minimize or mitigate those impacts that cannot be avoided• reduces traffic congestion, noise, air pollution, and adverse effects on resources and values• would not violate federal, state, or local air pollution control plans or regulations• would not cause use in the areas to exceed the areas’ user capacity• incorporates the principles of energy conservation and sustainability• is able to demonstrate financial and operational sustainability• incorporates universal design principles to provide for accessibility for all people, including those with disabilities• takes maximum advantage of interpretive opportunities and scenic values• is based on a comprehensive and multidisciplinary approach that is fully consistent with Kalaupapa NHP’s general management plan and asset management plan• enhances the visitor experience by offering new or improved interpretive or visitor opportunities, by simplifying travel within Kalaupapa NHP, or by making it safer to see features within Kalaupapa NHP.

Utilities and Communication Facilities	
Policy Guidance/ Sources: Telecommunica- tions Act of 1996 16 USC 5, Rights-of-Way Through Parks or Reserva- tions for Power and Com- munications Facilities NPS Management Policies 2006	<p>The Telecommunications Act of 1996 directs all federal agencies to assist in the national goal of achieving a seamless telecom-munications system throughout the United States by accommodating requests by telecommunication companies for the use of property, rights-of-way, and easements to the extent allowable under each agency’s mission. The NPS is legally obligated to permit telecommunication infrastructure in park units if such facilities can be structured to avoid interference with park unit purposes. Rights-of-way for utilities to pass over, under, or through NPS property may be issued only pursuant to specific statutory authority, and generally only if there is no practicable alternative to such use of NPS lands. Statutory authorities in (16 USC 5) and in NPS <i>Management Policies 2006</i> (§8.6.4) provide guidance on these rights-of-way.</p> <p>Desired Conditions:</p> <ul style="list-style-type: none">• Kalaupapa NHP resources or public enjoyment are not degraded by nonconforming uses.• Telecommunication structures are permitted in Kalaupapa NHP to the extent they do not jeopardize Kalaupapa NHP’s mission and resources.• No new nonconforming use or rights-of-way are permitted through Kalaupapa NHP without specific statutory authority and approval by the director of the NPS or his/her representative, and are permitted only if there is no practicable alternative to such use of NPS lands. <p>Management Direction/Strategies:</p> <ul style="list-style-type: none">• NPS staff would work with service companies, local communities and the public to locate new utility lines and maintain exist-ing lines so that there is minimal effect on resources.• If necessary, and if there are no other options, new or reconstructed utilities and communications infrastructure would be placed in association with existing structures and along roadways or other established corridors in developed areas. For recon-struction or extension into undisturbed areas, routes would be selected that minimize impacts on Kalaupapa NHP’s natural, cultural, and visual resources. Utility lines would be placed underground to the maximum extent possible, away from sensi-tive resources.• NPS policies would be followed in processing applications for commercial telecommunications facilities.

Appendix D: Floodplain Statement of Findings

Floodplain Statement of Findings for the Kalaupapa National Historical Park General Management Plan (Draft)

Kalaupapa National Historical Park
Kalawao County, Molokai, Hawai‘i

Recommended:

Superintendent, Kalaupapa National Historical Park	Date
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Certification of Technical Adequacy and Statewide Consistency:

Chief, Water Resources Division, National Park Service	Date
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Concurrence:

Regional Safety Officer, Pacific West Region, National Park Service	Date
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Approved:

Regional Director, Pacific West Region, National Park Service	Date
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Introduction

The National Park Service (NPS) prepared the Floodplain Statement of Findings for the Kalaupapa National Historical Park General Management Plan in August 2012 to describe proposals to implement broad actions described in the Kalaupapa National Historical Park General Management Plan/General Plan (GMP).

Kalaupapa National Historical Park (KNHP) was established by Congress in 1980 “in order to provide for the preservation of the unique nationally and internationally significant cultural, historic, educational, and scenic resources of the Kalaupapa Settlement on the island of Molokai in the State of Hawai‘i” (Public Law 96-565). The purpose of KNHP honors the mo‘olelo (story) of the isolated Hansen’s disease (leprosy) community by preserving and interpreting its site and values. The historical park also tells the story of the rich Hawaiian culture and traditions at Kalaupapa that go back at least 900 years. This general goal is included within the GMP for Kalaupapa in the form of several objectives:

- To develop the purpose, significance, and interpretive themes;
- To describe any special mandates;
- To clearly define desired resource conditions and visitor uses and experiences;
- To provide a framework for NPS managers to use when making decisions about how to best protect KNHP’s resources, how to manage visitor use, how to provide quality visitor experiences, and what kinds of facilities, if any, are needed for management of the park;
- To ensure that this foundation and plan for decision-making has been developed in consultation with the public, interested stakeholders and adopted by the NPS leadership after an adequate analysis of the benefits, impacts, and economic costs of alternative courses of action.

The purpose of this floodplain statement of findings (SOF) is to review the GMP in sufficient detail to:

- Provide an accurate and complete description of the coastal hazards assumed by implementation of the general management plan (without mitigation);
- Provide an analysis of the comparative risk between proposed alternatives;

- Describe the effects on coastal values associated with the proposed action, and;
- Provide a thorough description and evaluation of mitigation measures developed to achieve compliance with Executive Order 11988 (Floodplain Management) and the NPS Floodplain Management Guideline (Director’s Order 77-2).

Resource Description

KNHP is located on the island of Molokai, which at 38 miles long, 6 to 10 miles wide, and encompassing approximately 259 square miles, is the fifth largest island in the State of Hawai‘i. The park consists of a relatively flat peninsula (the Peninsula) located midway along the north shore of Molokai and is backed by three deeply carved valleys and steep cliffs (pali) rising from 1,600 feet above sea level at the western end of the park to more than 3,000 feet at the highest elevation of the pali. The National Park boundaries extend one-quarter mile offshore and include the islands of Huelo and ‘Ökala.

KNHP’s seaward boundary extends one-quarter mile offshore. Two distinct marine habitats, the intertidal zone and the coastal reefs, lie inside the boundary. Park waters shelter the endangered Hawaiian monk seal and humpback whale, the threatened green sea turtle, protected marine mammals such as the Hawaiian spinner dolphin, and well-preserved reef communities of coral, fish, and invertebrates. The ocean portion of the park also includes two islets, ‘Ökala and Huelo which serve as seabird sanctuaries, and one rocky pinnacle, Nāmoku; on the northwestern section of the peninsula.

The intertidal zone wraps around the peninsula to cover a total area of 0.22 square miles. Like other exposed north shores throughout Hawai‘i, the intertidal area includes sandy beaches, cobble and boulder beaches, sea cliffs, raised benches, and tide pools.

Compared to other coastal areas throughout the main Hawaiian Islands, the Coastal Spray Area at KNHP (766 acres) supports a diverse and extensive native coastal vegetation community. For this reason, the Coastal Spray Area of the eastern coast of the Kalaupapa peninsula has been identified as a Special Ecological Area. Other terrestrial resources for which KNHP is known include the dryland forest remnants within the Kauhakō Crater and the higher elevation Pu‘u Ali‘i Rainforest. Areas dominated by native plants have been fenced off to

define areas of ongoing feral animal control (goats, deer, and pigs), and form Special Ecological Areas.

For the purposes of the GMP and this SOF, *buildings* are defined as constructed features made to shelter some sort of human activity such as a house, barn, church, or warehouse; whereas structures are constructed features for other purposes such as fences, bridges, gravemarkers, roads, utilities or terrain modifications.

KNHP has approximately 1,500 historic buildings and structures which includes 270 historic buildings, 4 outdoor sculptures, 2 main roads, 30 ruins, 1,199 grave markers, 27 cemeteries, 1 special feature (Waikolu water line), and 1 marine/waterway feature (Kalaupapa Landing). The preservation of these buildings and structures is paramount because they are the physical evidence and remnants that help tell the story of Kalaupapa.

When the Kalaupapa Leprosy Settlement historic district was declared a National Historical Landmark (NHL) in 1976, over 400 buildings stood in the area. Upon establishment of KNHP in 1980, the NPS completed an inventory of the historic buildings. Knowing not all of these could be saved, the Park Service targeted about 200 for preservation, prioritizing them by their significance. Over the intervening 40 years, about one-fifth of these priority buildings have been lost due to weather-related deterioration and termite infestation. At the same time, the NPS has identified historic buildings which were not listed in 1980, but which contribute to the historic district’s character and setting.

The types and patterns of buildings on the peninsula reflect patients’ needs and the operational requirements of the State of Hawai‘i Department of Health (DOH). Buildings are of four major types: residential, administration/industrial, religious, and patient-built structures. Despite their different uses, nearly all the buildings share an architectural cohesiveness that is the result of a consistent handling of form, material, and style. Similarly, the 12 marked cemeteries in the park display relatively consistent use of materials, construction styles, and techniques.

Most of the historic buildings at Kalaupapa were erected by the State of Hawai‘i Department of Health. But patients added buildings and structures of their own, ranging from garages, pig sties, and chicken coops to houses on the beach that offered an option for rest and recreation outside their institution provided

facilities while still isolated in the settlement proper. To effectively tell the story of how patients shaped their lives on the peninsula, it is important to preserve and maintain these small but significant patient-built elements.

Despite the maintenance challenges, many of the historic buildings and structures from the settlement’s period of significance still stand as visible testaments to the needs and strengths of the Hansen’s disease patients. Smaller features such as stone walls, entry pillars, statuary, monuments, and memorials are simple but vivid expressions of their utilitarian, aesthetic, and spiritual life. KHNP staff play an ever more important role in managing the remaining cultural and natural resources of the park as DOH responsibilities decline consequent to the dwindling number of patients.

Coastal Hazards

Tsunami

Tsunamis are a series of waves most commonly caused by large earthquakes below or near the ocean floor on thrust faults associated with subduction zones. Tsunamis can also be caused by undersea landslides. Tsunamis differ from ordinary ocean waves and storm surges in that the entire water column from the sea floor to the ocean surface is displaced, not just the upper few feet of the ocean surface as with ordinary ocean waves. As tsunamis enter shallower coastal waters, the speed of the wave slows down and the height increases. A wave that may be only 3 feet high or less in the ocean may climb to more than 60 feet when it hits the coastline.

Tsunamis can cause great loss of life and property damage where they come ashore. The first wave is almost never the largest; successive waves may be spaced tens of minutes apart and continue arriving for many hours. All low lying areas along the Pacific Coast of the U.S. are subject to inundation by tsunamis. Two kinds of tsunami could affect KHNP.

The Pacific Rim is the name given to the land masses surrounding the Pacific Ocean. Very large earthquakes anywhere around the Pacific Rim may cause a **distant source tsunami** that could strike the KNHP coastline. The first waves would reach the coastline many hours after the earthquake occurred depending on the distance of the quake from KNHP. Tsunami Warning Centers will alert local officials, who may order evacuation along the coastline in KHNP.

The effects of a distant-source tsunami on KNHP may be negligible or severe, depending on the magnitude of the earthquake, the distance of the earthquake from the parks, and the direction of approach. Valley mouths or inlets are more vulnerable than exposed coastlines because the height of the waves may increase as the wave energy becomes concentrated as it moves through a constricted valley/inlet entrance.

If a large earthquake occurs within the major Hawaiian Islands, the first waves (a **local source tsunami**) may reach the coast within minutes after the ground shaking stops. There is no time for authorities to issue a warning. People on the beach or in low coastal areas need to move to higher ground as soon as the ground shaking stops and stay away from low-lying coastal areas until an official “all clear” is broadcast.

Locally generated tsunamis constitute the most serious threat because they can strike suddenly, before a tsunami warning system has been activated and sometimes before ground shaking stops.

Lack of information about how tsunamis behave is widely responsible for loss of human life in many situations.

Often the damage from a tsunami is caused not by the water but by large amounts of debris carried in the water. The arrival of a tsunami may be preceded by a withdrawal of water from the coastline. Tsunamis are not breaking waves like those usually seen along a beach, but most often hit the coast as debris-filled turbulent water. Debris entrained in the tsunami strikes whatever is in its path and can cause extensive damage to structures. Strong currents are also a common feature of tsunamis and can cause extensive scour and deposition of debris.

Other Coastal Dangers

In addition to tsunamis, another seismic hazards in the coastal area are ground-shaking and liquefaction. Liquefaction can also occur when loosely packed, wet sand is shaken in an earthquake causing the sand flow like a liquid. Ground shaking is amplified in soft sediments such as sand, which increases the potential for damage to structures.

The cliffs for which KNHP is famed present yet another hazard. Local earthquakes would likely result in loose boulders and landslides posing a threat to hikers on the trail and residents and visitors below the cliffs.

Although earthquake derived hazards such as tsunamis are assumed by many people to be the most serious hazard to human life and safety along the Hawaiian coastline, there is also a great risk to park visitors along the coast from exceptionally large waves that are impossible to predict and that occur every year. They are called rogue or sneaker waves because they appear without warning any time of the year, often surging high up on the beach with deadly force. These waves generally result in one or more fatalities across the Hawaiian isles on an annual basis.

Influence of Predicted Climate Change

Direct hurricane strikes to the Hawaiian Islands are relatively rare, averaging fewer than one per decade. However, high wave events related to passing low pressure systems and distant storms that generate long period swell are a common seasonal phenomenon.

Since KNHP is a coastal park, sea level rise may inundate low-lying natural and cultural resources such as nesting and nursing habitat for threatened and endangered species, historic structures, and archeological sites. Higher storm tides may result in more frequent flooding, and coastal erosion. Globally, sea level is rising at the rate of 0.13 inches per year, although this rate has been accelerating in recent years (Church and White, 2011). In Hawai‘i, sea level has risen over 5 inches since 1918 (Firing and Merrifield, 2004). This rise in sea level is expected to accelerate in the future with melting of the polar ice caps and thermal expansion of the ocean with increasing water temperature.

As sea level rises, normally non-hazardous wave events occurring on annual and inter annual frequencies will penetrate further inland and threaten coastal ecology, cultural resources, and park infrastructure. Areas at risk likely include the zone of potential inundation by water due to flood or tsunami as defined by Figure C.1.

Kalaupapa Tsunami Evacuation Plan

The current evacuation map for Kalaupapa is available on-line from State Civil Defense (<http://www.scd.hawaii.gov/>), represented also by Figure 1. The map



Figure C.1. Areas of potential inundation by water due to flood or tsunami: The tsunami evacuation zone dates from 1991, and may be updated consequent to the 2011 Japanese earthquake and subsequent tsunami. Inset provides detail of current inundation zone. The 100-foot elevation contour provides insight about the inundation zone consequent to a more extreme tsunami event. The 100-year floodplain indicates danger from sneaker waves.

dates from 1991 and interpolates between the few run-up measurements of the tsunami of 1946. This was converted to inundation distance by one-dimensional modeling. Recent modeling efforts projecting “worst-case” scenarios are currently under examination by Maui County (including Kalawao County). This mapping, using state-of-the-art two-dimensional modeling, was completed by Kwok Fai Cheung at the University of Hawai‘i, Manoa. For Kalaupapa, the maps show flooding entirely contained within the evacuation area of the 1991 map. It is thus expected that the evacuation map for Kalaupapa will not change in the near future. However, evacuation maps may be updated in the future as studies of the recent Japanese earthquake are completed.

The 2011 Japanese earthquake was unusual in that it ruptured a fairly small area but had huge slip, more than double the slip ever before seen in any previous earthquake. A similar large-slip magnitude 9 earthquake at the right location in the eastern Aleutians could send Hawai‘i waves significantly larger than those that encountered by the islands in 1946.

The current evacuation maps approximate the 60–70 foot contour, and are considered conservative. In 1946, Kalaupapa Settlement saw a maximum run-up of about 32 feet (Figure C.2), though a half mile to the west of Kalaupapa the run-up reached 44 feet. The largest run-up anywhere in the islands in 1946 was over 54 feet on the cliffs just east of the Kalaupapa peninsula—the largest run-up ever measured in Hawai‘i. It is unlikely that flooding from a tsunami even twice as large as the 1946 event would extend inland beyond the evacuation zone. Other authors suggest the adoption of the 100 foot contour as a measure of inundation zone for an extreme event. The 100 foot contour completely envelopes the settlement of Kalaupapa (Figure C.1).

The GMP Alternatives

The GMP alternatives differ principally in the incorporation of a long-term plan (no-action versus alternatives B, C, and D), the number of historic buildings stabilized versus restored/rehabilitated, visitation (number of visitors, and whether the visitation is focused topside (alternative B) versus on the Kalaupapa Settlement (alternatives C and D).

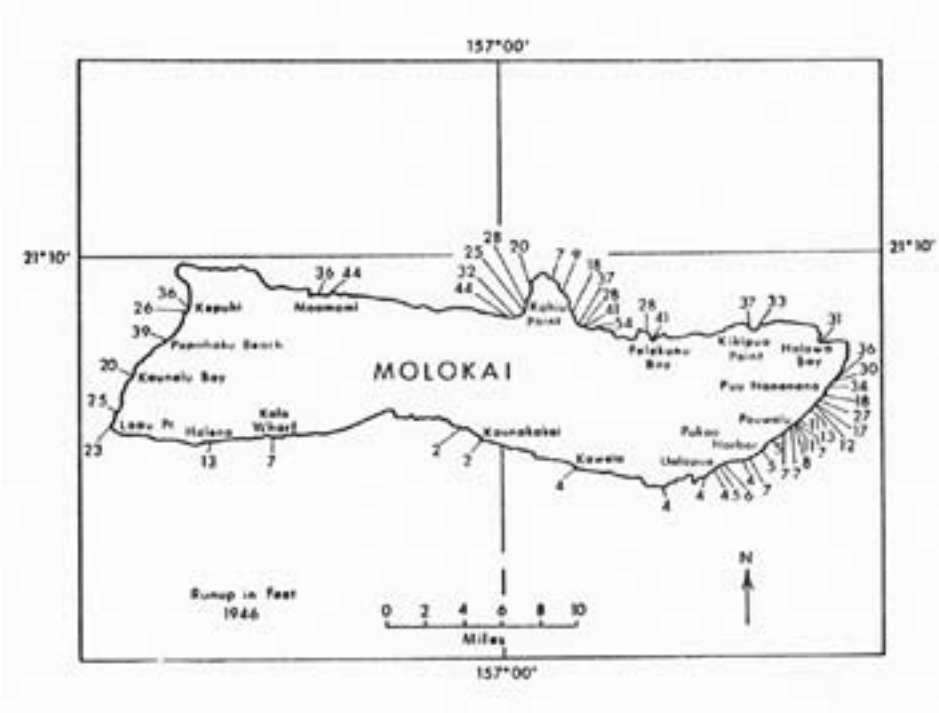


Figure C.2. Run-up data (feet) for the 1946 tsunami, island of Molokai (Loomis 1976).

Maintaining Kalaupapa’s spirit and character is the primary focus of this alternative. Kalaupapa’s diverse resources would be managed to protect, maintain, and enhance their integrity. Visitor use and experiences at Kalaupapa would be similar to existing conditions. The NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at off-site locations. Agreements with partners would be renegotiated and renewed to reflect the intent and actions of this alternative.

Under alternative A (the no-action alternative), the NPS would continue to manage KNHP as it has been currently managed following existing management policies and programs. Alternative A assumes that existing management, programming, facilities, staffing, and funding would generally continue at their current levels to protect the values of KNHP in the near term. Alternative A does not provide long-term guidance for park management after the DOH departs Kalaupapa. Existing cooperative agreements with agencies and organizations and the lease agreement with DHHL would continue as long as they are viable. Upon expiration, these agreements would be subject to negotiation.

Alternative B focuses on Kalaupapa’s special or sacred places celebrated and made legendary by stories.

Alternative C (the preferred alternative) emphasizes stewardship of Kalaupapa’s lands. Resources would be managed from mauka to makai. Kalaupapa’s diverse resources would be managed to protect, maintain, and enhance their integrity. This alternative emphasizes resource stewardship of Kalaupapa’s lands through hands-on activities and service and volunteer work groups. Alternative C focuses on group visitation and some general visitation. Agreements with partners would be renegotiated and renewed to reflect the intent and actions of this alternative as necessary.

Alternative D focuses on personal connections to Kalaupapa through visitation by the general public. Kalaupapa’s diverse resources would be managed to protect and maintain their integrity. Alternative D emphasizes visitation by the general public. Visitors would have the freedom to learn about Kalaupapa’s people and history through direct experience, exploration, and immersion in the historic setting. Agreements with partners would be renegotiated and renewed to reflect the intent and actions of this alternative.

Structures in the Hazard Zone

The NPS Floodplain Management Guideline (Director’s Order 77-2) divides actions into the following three groups:

Class I Actions—including administrative, residential, warehouse and maintenance buildings, and nonexempted (overnight) parking lots. Picnic facilities, scenic overlooks, foot trails, and small associated daytime parking facilities that are water-dependent are exempted only if they are located in non-high hazard areas.

Class II Actions—those that would create “an added disastrous dimension to the flood event.” Class II actions include schools clinics, emergency services, fuel storage facilities, large sewage treatment plants, and structures such as museums that store irreplaceable records and artifacts.

Class III Actions—Class I or Class II Actions that are located in high hazard areas such as those subject to coastal hazards.

While no new structures are proposed for construction within the settlement of Kalaupapa, over 400 historic buildings and structures serve a wide variety

of functions crucial to the functioning and preservation of the history of the settlement.

The primary historic structures located in the hazard zone are:

- Care facility (DOH);
- State Department of Health Administration office;
- Visitors quarters used to house non-volunteer visitors;
- KNHP Administration office;
- Hale Malama Archival facility;
- Natural Resource Management office;
- Paschoal Recreational Hall;
- Bishop Home;
- St Francis Church;
- Protestant Church;
- Store and warehouse;
- Gasoline station;
- Bayview Home used to house volunteers and staff;
- Quonset hut used to house staff; and;
- many buildings considered residential.

An Analysis of GMP Alternative Influence on Coastal Hazards

None of the alternatives have the intention of constructing new facilities within the tsunami inundation zone. All alternatives favor the restoration of key buildings symbolic of the history of Kalaupapa (for example, St Philomena from which Saint Damien administered his flock and Paschoal Hall where patients sought entertainment) and the stabilization of lesser historic buildings. Alternatives with higher levels of visitation within the settlement (alternatives C and D) would restore/rehabilitate or retrofit a greater number of buildings to accommodate the increased visitation. Many of these buildings would be in the tsunami inundation zone, and therefor represent a federal investment placed at greater risk than alternative B which favors developing visitor facilities topside, outside of the tsunami inundation zone.

From the perspective of analyzing the influence of the GMP alternatives on coastal hazards and endangerment of human lives, there is little difference between alternatives but for the number of visitors within the tsunami inunda-

tion zone. While all alternatives to the no-action would have a greater number of visitors within the settlement of Kalaupapa, the emphasis of increased daily visitors under alternative D would endanger more people than alternatives B and C. Alternative C (the preferred alternative) is therefor intermediate in the number of visitors at threat from tsunami or sneaker waves.

All of the actions proposed under the KNHP General Management Plan are considered Class III actions because of their location immediately adjacent to the ocean in an area known to be at risk for a damaging seismic event, including both distant source and local tsunamis and liquefaction. The regulatory floodplain for Class III actions is the extreme floodplain, which in this case is the modeled tsunami generated by a magnitude 8+ earthquake originating along the Pacific margins of South America, Alaska, the Aleutian Islands, Kamchatka, the Kuril Islands, or Japan and assumed to have a run-up of least 20 vertical feet and perhaps as much as 100 vertical feet.

Justification for Use of the Coastal High Hazard Zone

KNHP was established in 1980 to preserve and educate visitors about the isolated Hansen’s disease (leprosy) community established on the Kalaupapa peninsula. The facilities serving day-use and overnight visitors to KNHP are located immediately adjacent the coastline. Based on the establishing legislation, preservation of the buildings and public education are the major purposes of KNHP. There are no alternative sites out of the coastal high hazard zone where historic preservation and interpretation can be located. Proclamation as a National Historical Landscape and desire to preserve historic viewscales prevents the construction of new visitor facilities outside of the tsunami zone.

Because much of the historic Kalaupapa Settlement is subject to extreme seismic events, it is not practicable to locate interpretive sites out of a coastal high hazard zone. It is not possible to relocate historic buildings to avoid damage from a major seismic event. It is only practicable to reduce loss of life and property through preparations before, during and immediately after an earthquake or a tsunami. The primary preparation for tsunamis is to inform people how tsunamis behave and what risks are associated with tsunamis.

The Tsunami Warning System (TWS) was created to monitor seismic activity capable of generating tsunamis (tsunamigenic earthquakes) in the Pacific basin and to provide timely warnings to affected areas to reduce loss of human life.

The TWS monitors seismic events and tide stations throughout the Pacific Basin to evaluate potential tsunami-generating earthquakes and to disseminate tsunami warnings. The Pacific Tsunami Warning Center (TWC) in Honolulu, Hawai‘i is the operational center for the Pacific TWS. The West Coast and Alaska Tsunami Warning Center (WC/ATWC) in Palmer, Alaska serves as the regional tsunami warning center for California, Oregon, Washington, British Columbia, and Alaska. If the preliminary magnitude of an earthquake detected by one of the TWCs is greater than 7.5 and the expected travel time to the Hawaiian Islands is more than five to six hours (Walker 2008), the TWS issues a tsunami advisory bulletin. If the expected travel time is between two and six hours, a tsunami watch bulletin is issued, with a tsunami warning bulletin issued to areas within two hours travel time to warn of imminent tsunami hazard. Since 1981, the WC/ATWC has issued 17 regional tsunami warnings, with an average response time of 10.6 minutes (range 8–14 minutes) between the quake and the warning.

All beach users are also at risk from sneaker waves. The north coast of all the Hawaiian Islands are renowned for sneaker/rogue waves. People in the intertidal zone (typically local fisherman and opihi (limpet) pickers are under the highest threat, though large waves can endanger visitors well above the high tide mark. Several lives are lost every year in Hawai‘i to unpredictable sneaker waves.

Description of Site-specific Coastal Hazard Risk

The tsunami risk at KNHP depends on the magnitude and location of the seismic event that generates the tsunami. The height of the tsunami depends on the magnitude of the event. The lapse of time between earthquake and arrival of the tsunami depends on the location of the event. For a distant source tsunami, the NPS will rely on the TWS, the local Office of Emergency Services, and local emergency services providers to disseminate information about the expected arrival time of a tsunami and to evacuate anyone in the coastal high hazard zones until the threat has subsided. There may be no warning time for a locally generated tsunami.

Distant source tsunamis, regardless of run-up height, will be preceded by advisories, watches, or warnings issued by the TWC in Honolulu. Once a watch or a warning is issued, the NPS will reduce or eliminate the risk at KNHP by evacu-

ating any visitors and most park staff out of the immediate area using trained staff from KNHP and the state Department of Health.

For locally generated tsunamis, the risk depends on the magnitude and duration of ground shaking and whether liquefaction occurs. Should liquefaction occur, any persons in the immediate area will have to move to the nearest high ground as soon as possible. The current tsunami evacuation plan for locally generated tsunami (identified by earth tremblers strong enough to jar or throw a person to the ground) calls for immediate evacuation on foot to higher ground along a predetermined route. Households and staff with vehicles would drive along the evacuation route within minutes to move all foot traffic to higher ground. It is envisaged that this approach would achieve evacuation of most Kalaupapa residents within minutes of the earthquake. Following the issuance of a tsunami warning, the end point for any exodus from the settlement of Kalaupapa or the east coast of the peninsula is the tsunami evacuation center immediately south of the crater, midway between the crater and the pali (see map 1).

Design or Modifications to Minimize Harm to Coastal Values or Risks to Life and Property

Actions occurring within the coastal high hazard zone are subject to the provisions of the National Park Service Floodplain Management Guideline (Director’s Order 77-2).

Destruction from tsunamis is the direct result of three factors: wave impact, inundation, and erosion. The influence of wave impact and inundation are easily understood as a result of the imagery resulting from the 2011 Japanese earthquake. Less easily perceived is the highly damaging effect of water loaded with debris as it recedes back to the ocean. Water rendered dense with debris including vegetation and artifacts from structures becomes highly erosive as it scours the landscape and objects within the water on the way back to the ocean. Erosion becomes more likely if severe local ground-shaking results in soil liquefaction before or during a tsunami. Erosion of the Kalaupapa coastline is an unavoidable and unmitigatable consequence of a damaging earthquake and ensuing tsunami.

New structures have been kept to a minimum to reduce intrusions into the ocean views and preserve the historic viewscape. The structures located along

the coast that would create debris moved by a tsunami are all of a historic nature. Vegetation and driftwood that washes down the rivers and onto the beach is an additional source of debris.

There are no mitigation measures that could be applied to protect facilities within the tsunami hazard zone. The proposed facilities are of major historical significance, and the NPS acknowledges that many facilities with the settlement of Kalaupapa are subject to damage or destruction from seismic events and tsunamis. The general management plan acknowledges that both the seismic and tsunami risk are substantially greater than what was known when the settlement was founded. The NPS is focusing on protecting human life and safety through warning and evacuation rather than minimizing property damage.

Risk to life and property at KNHP would be minimized by:

- Posting signs at the beach advising about the danger of sneaker waves;
- Providing information about tsunami behavior such as series of waves and entrained debris will further reduce risk of injury;
- Installation of a tsunami warning system and definition of an evacuation route;
- The construction of a tsunami evacuation center;
- Favoring overnight facilities outside of the mapped inundation zone, and;
- Risk to human life and safety from sneaker waves, undertows, and rip currents would be reduced through posting signs describing coastal dangers and encouraging visitors to adopt a vigilant attitude (keep attention focused on the water rather than turning their back to the ocean) and to describe swimming techniques for escaping undertow and rip currents.
- Improving our knowledge base by completing an assessment of coastal vulnerability to wave overtopping, sea level rise, and extreme wave events for KNHP. Products would include a paleo tsunami evaluation and maps of historical shoreline change showing coastal erosion areas.
- As climate change progresses, park closing the park may become a useful tool to improves safety in the face of predicted storms.

Conclusion

The NPS concludes that the proposed action would not appreciably increase the impacts of coastal hazards associated with tsunamis or “sneaker” waves at KNHP.

Exceptionally large sneaker waves and seismic events capable of generating a tsunami are a certainty but the timing is unpredictable. Sneaker waves may arrive in any season. Winter storm surges during high tides will increase the hazard associated with large waves. The NPS will monitor weather and sea conditions during all seasons and will post additional warnings and increase beach patrols during periods of hazardous sea conditions.

Property along the Hawaiian Coast will be damaged or destroyed in a major seismic event generated locally or regionally. The extent of property damage will depend on the magnitude and location of the event. A local event will be likely to cause greater damage than a distant event. The reduced warning consequent to a local earthquake event would result in greater loss of life due to a shorter notice for evacuation.

Distant seismic events capable of generating a tsunami allow time for warning and evacuation, which will reduce or eliminate hazards to human life and safety. There is no mitigation that can be prescribed for the infrastructure and facilities along the coastline.

While restricted public access to much of the Kalaupapa coastline reduces the risk posed to the public by rogue and seismically induced waves, it is not practicable to prevent people from accessing the coastline within the bounds of the Kalaupapa Settlement.

NPS investments in historic buildings within the potential tsunami inundation zone amount to over \$20,000,000. Furthermore, key administrative buildings, law enforcement, residences, and the archival center would be destroyed by a tsunami event that completely covered the inundation zone depicted by Figure 1. The loss of administrative centers (NPS and State Department of Health), the law enforcement buildings and safety equipment/first aid supplies, and other key facilities would cripple short-term and long-term operations within KNHP.

The primary response by the NPS to reduce harm of potential tsunamis on human life would be to:

- Post warning signs describing the hazards and evacuation procedures in the case of a major local event. For distant source tsunamis, the NPS will undertake warning and evacuation procedures consistent with the directions given by local emergency services agencies;
- Construct an evacuation center outside of the maximum inundation zone;
- Clearly mark an evacuation route to higher and safer grounds beyond the safety inundation zone, and;
- Participate in Kalaupapa-specific, islandwide, and regional exercises to prepare for future tsunami events.

Adverse impacts to property, safety, and human life are likely to occur from unpredictable seismic events over the long-term, but there is no practicable way to avoid these impacts and continue to meet other legal obligations for providing access to the settlement and adjacent coastal zone. There are no practicable, hazard-free, alternative locations for visitor facilities other than existing historic structures whose purpose is to facilitate access and educate visitors about the history of Hansen’s disease on the isolated peninsula encompassing Kalawao and Kalaupapa. Therefore, the National Park Service finds the proposed action to be acceptable under Executive Order 11988 for the protection of floodplains.

References

Church, J. A. and N.J. White.
2011 Sea-level rise from the late 19th to the early 21st Century. *Surveys in Geophysics*, doi:10.1007/s10712-011-9119-1.

Firing, Y. L. and M. A. Merrifield.
2004 Extreme sea level events at Hawaii: Influence of mesoscale eddies, *Geophysical Research Letters*, 31: L24306, doi:10.1029/2004GL021539

Loomis, G. H.
1976 *Tsunami Wave Run-up Heights in Hawai’i*. Hawai’i Institute of Geophysics, Joint Tsunami Research Effort, Pacific Marine Environmental Laboratory, Environmental Research Laboratories, NOAA. Honolulu, HI: University of Hawai’i at Manoa.

Walker, D. A.
2008 “Tsunamis in Hawai’i.” An informational poster prepared by the Tsunami Memorial Institute, Haleiwa, HI.

Appendix E: Wild and Scenic River Analysis for Kalaupapa NHP

The Wild and Scenic Rivers Act of 1968 resulted in the Nationwide Rivers Inventory—a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more special natural or cultural values judged to be rare, unique, or exemplary within a region of comparison. Free-flowing condition and possession of these river-related or river dependent outstandingly remarkable values (ORVs) form the basis for listing a river as eligible for listing as a “Wild and Scenic River.”

Rivers are also classified as Wild, Scenic, or Recreational based on the level of human impact. In general, rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted are classed as Wild rivers. Scenic rivers or sections of rivers are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads. Recreational rivers are rivers or sections of rivers readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Purpose and Scope

In 1990, the Hawai‘i Stream Assessment documented, analyzed, and made recommendations about streams throughout the Hawaiian Islands, including Waikolu Stream located in Kalaupapa NHP. In 1993, Waikolu Stream and other Molokai North Shore rivers (Pelekunu and Wailau) were listed within the National Rivers Inventory as eligible for Wild and Scenic classification. The National Rivers Inventory states that Waikolu contains outstandingly remarkable values of *scenery*, *fish*, and *wildlife*. Waikolu was tentatively classed as both Wild and Scenic based on the degree of existing development

The first purpose of this report is to update past eligibility findings based on new information and changes that have occurred since 1993, and new guidance and criteria developed and adopted by the Interagency Wild and Scenic River Coordinating Council. The second purpose is to lay the groundwork for

a more detailed analysis of suitability during the lifetime of this general management plan.

See Figure 4.3 Aquatic Ecosystems.

Waikolu Watershed

Moving from the dry west to the east end of the island of Molokai, Waikolu is the only stream with a perennial watercourse that maintains running water through the dry season. It is also the only perennial stream within the boundary of Kalaupapa National Historical Park (Kalaupapa NHP). Other streams within the park may have perennial seeps and pools, but do not maintain flow throughout the year to enable the designation as a perennial stream. The Hawaiian meaning of Waikolu, “three waters,” is in reference to its three major tributaries.

The Waikolu Stream watercourse is deeply entrenched in the floor of Waikolu Valley. It is artificially interrupted by water diversion structures in its upper reaches. The valley, like most north shore Molokai streams, is wide at the mouth and narrow with steep valley walls in the upper portion. The steep headwaters arise from mountain bogs between Pepeopae and Pu‘u Ali‘i just above an elevation of 4,000 feet on the interfluvium that separates Waikolu and Pelekunu Valleys. The headwater reach drops rapidly to the mid-reach which has a moderate gradient and numerous small waterfalls and rapids. The mouth of Waikolu Stream consists of a relatively shallow boulder riffle (Brasher 1996, Polhemus 1996). The location of the opening to the sea can change as winter storms rearrange the boulder rampart at the shoreline.

Four miles of the stream are considered eligible for listing. The area of the watershed is 4.7 square miles, with a maximum elevation of 4,275 feet. Most of the Waikolu watershed occurs on State of Hawai‘i Department of Land and Natural Resources lands (82.7%) within Kalaupapa NHP, while the remainder is under private ownership by the Nature Conservancy (9.7%).

Waikolu Stream Management

The entire Waikolu watershed is considered to be under conservation management by the NPS, DLNR, and the Nature Conservancy through a cooperative agreement (DAR 2008).

The Waikolu watershed incorporates the Pu‘u Ali‘i National Area Reserve. The State of Hawai‘i Department of Land and Natural Resources (DLNR) and Division of Forestry and Wildlife are responsible for the National Area Reserve System, which are managed according to Hawai‘i Administrative Rules (HAR) Title 13, Chapter 209.

The NPS, DLNR, and the Nature Conservancy collaborate on the management of the watershed. The construction of large feral ungulate exclosures and wingfences for the management of problem animals is a joint venture between partner organizations. Partners continue to work together to maintain low numbers of goats and pigs over much of the landscape and to eradicate animals from exclosures for the protection of the rainforest. The prevention of soil surface disturbance and recovery of vegetation reduces erosion and the transfer of sediments along the Waikolu watercourse thus improving water quality.

Water diversions remain one of the major impacts to the Waikolu system. Upper Waikolu Stream has been diverted for irrigation and human use by the Molokai Irrigation System since November 1960. Water taken from Waikolu Stream is transported through the 5.1 mile Waikolu Tunnel for use in the western and southern portions of Molokai (Brasher 1996). Three surface water diversion structures exist at approximately 1,000 ft elevation; two diversions occur on tributaries to Waikolu Stream and one on the main stream. There is also a surface water diversion structure at 730 ft, which collects and pumps water up to the Waikolu Tunnel. The Molokai Irrigation System diverts roughly 4.5 million gallons per day (Way et al. 1998). Six wells have been drilled, five in the valley and one in the tunnel (Brasher 1996); however, their current operational status is unknown.

Eligibility Analysis

The WSR Act has two requirements for eligibility; the river segment must be free-flowing and possess one or more outstandingly remarkable value in *fish*, *wildlife*, *geology*, *recreation*, *scenery*, *history*, *culture*, or other similar value. This section reexamines the current listing of Waikolu’s eligibility for free-flowing condition and outstandingly remarkable values of *scenery*, *fish*, and *wildlife* that are listed on the National Rivers Inventory. It is also provides new information and analysis about history and culture.

Free-flowing Condition

“Free-flowing” is defined in section 16(b) of the Act as: existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. However, the existence of low dams, diversion, and other minor structures does not bar Waikolu’s eligibility as a wild and scenic river. Considerable research about the effects of water removal on the hydrology has been completed for Waikolu.

Three stream gages were recently operating on Waikolu Stream. A single gage was located in the upper reach of Waikolu Stream at altitude 900 ft. Another gage was on Waikolu Stream below the pipeline crossing at 252 ft from 1919 to 1996. Another gage operated in the Molokai Tunnel east portal from 1966 to 2002.

Daily discharge is monitored at the three stations along the stream course. There are often high peaks in the mean daily flows. Base flows at the gaging station near the mouth of Waikolu Stream ranged from 9.89 to 30 cubic feet per second (cfs) during the rainy season and less than 9.89 cfs during the dry season (Kondratieff et al. 1997).

Temperature measurements taken at three gaging stations on Waikolu Stream increased slightly between 1969 and 1898. Polhemus (1996) found that water temperatures along the main channel of Waikolu Stream ranged from 64.4 degrees Fahrenheit at 590 ft to 69.8 degrees at 262 ft. The water temperature in the spring fed tributaries was slightly colder, measured as 66.2 degrees (Polhemus 1996). From 1969 to 1985, the lower and middle stations experienced a drop in pH. During this period, the State of Hawai‘i Water Quality Standards upper limit for pH levels in surface water resources was exceeded nine times (DeVerse and DiDonato 2006).

Water diversion has altered the natural base flow of the stream. The lower reach maintains continuous flow due to intermediate surface runoff and groundwater accretion. In contrast, intermediate reaches below the diversion are dry for most of the year. It has been estimated that the intermediate reaches of Waikolu Stream carry only 50% of the natural undiverted flow conditions, while the lower reaches carry 70% (Brasher 1996); however, the accuracy of these estimates may be in question due to the short duration of these studies.

The instantaneous measurements of discharge at the upper level intake are generally higher (mean = 3.9 cfs) than at the station just below it (mean = 2.7 cfs) and much lower than the lowest elevation station (10.4 cfs) (DeVerse and DiDonato 2006). The impact of water withdrawals by the diversions is also dependent on the amount of stream flow. The diversions have the greatest hydrological impact on low flows, with levels of depletions reaching 50%, and the least impact on very high flows (Diaz et al. 1995).

Historic data indicate that before the stream was diverted, periods of high flow greater than 10.6 cfs occurred in the winter and spring, followed by drier periods of greater than 4.9 cfs in the summer and fall. Once the Molokai Irrigation System became operational, there was a reduction in flow for all months.

Concerned about the potential impacts of water diversion upon the native amphidromous fauna in Waikolu Stream, the NPS Water Resources Division DLNR initiated a project to demonstrate the impact of the diversions and well pumping on the natural flow regime of the stream (NPS 1996). As stated above, Water Resources Division collected discharge data at two locations on Waikolu Stream between 1993 and 1996. Immediately downstream of the lower-most diversion, the lowest and highest daily mean discharge collected during this time period was 0.12 and 149 cfs, respectively. Above the upper-most surface water diversion, the lowest and highest daily mean discharge was reported as 0.3 and 63 cfs, respectively.

Brasher documented microhabitat and substrate composition for certain sections or stations of Waikolu Stream (Brasher 1996, 1997a, 1997b). In and just below the diverted section in Waikolu Stream, 93% of the macrohabitat at sampling stations was classified as “pool,” indicating negligible flow through the section during the period of study. Boulders were the most common substrate.

The distribution patterns of freshwater gobies provide some evidence of the influence of altered hydrology on the aquatic ecology of Waikolu Stream. *Awaous guamensis* was observed in the upper stations of Waikolu Stream above the diversion. Brasher suggested that the lack of fish in this area may be due to restricted upstream movement by the two dams and the reduction of flow (Brasher 1996). In Hawai‘i, *Lentipes concolor* typically increase in abundance with increasing distance upstream; however, *L. concolor* were more abundant in the lower reaches of Waikolu Stream, and less abundant in the higher reaches, especially above the diverted section. Brasher suggested that the lower number

of *L. concolor* in the mid and upper reaches of Waikolu Stream may be a result of the decreased flow and periodic dewatering of the stream section below the upper dam, reducing available habitat for the gobies and inhibiting upstream migration (Brasher 1996).

Outstandingly Remarkable Values

An Outstandingly Remarkable Value (ORV) is defined as a river-dependent feature that is unique, rare, or exemplary at a comparable regional or national level. Typically, a “region” is defined on the scale of an administrative unit, a portion of a state, or an appropriately scaled physiographic or hydrologic unit. To be considered river-dependent, a value must be located in the river or on its immediate shorelands and contribute substantially to the functioning of the river ecosystem or owe its location or existence to the presence of the river.

Scenery

The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. When analyzing scenic values, additional factors, such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.

The narrow watercourse hemmed in by steep cliffs clothed in verdant vegetation is the primary contributor to Waikolu’s scenic character. Much of the higher elevation vegetation within the bogs that feed Waikolu Stream remains native. The structure of the vegetation including ferns, sedges, shrubs, and trees clothed in mosses and lichens is characteristic of the dwindling native rainforests of Hawai‘i. The rainforest is located within a Natural Area Reserve managed by the State DLNR.

The Pu‘u Ali‘i NAR is considered an outstanding example of a Hawaiian montane wet forest or *Metrosideros* (‘ōhi‘a) forest (NPS 2007). Five natural vegetation communities have been identified in the Pu‘u Ali‘i NAR. These include *Metrosideros*/ Mixed Shrub Montane Wet Forest, *Metrosideros* Montane Wet Shrubland, Mixed Fern/ Mixed Shrub Montane Wet Cliffs, *Metrosideros*/*Cheirodendron* (‘ōlapa) Montane Wet Forest, and *Metrosideros*/*Dicranopteris* (uluhe) Montane Wet Forest (Hawai‘i Natural Heritage Program 1989). Several

of these communities are also found on the adjacent Pelekunu Preserve (The Nature Conservancy 2003b).

Roughly 160 plant species were documented in the Pu‘u Ali‘i NAR in 2003 (Wood and Hughes 2003). Seventy percent of these species are considered endemic to Hawai‘i. At least 43 new plant records have been surveyed and documented for the NAR (Wood et al. 2005). Approximately 34 species within the NAR and surrounding area are considered rare plant taxa. The Pu‘u Ali‘i Management Plan defines a species as rare “if it is known from 20 or fewer locations worldwide, or fewer than 3,000 individuals.” Of these, ten have been confirmed within the reserve boundary.

Apart from the contribution of vegetation to the scenic ORV, the valley has a unique topography and drainage structure compared to the nearby Pelekunu and Wailau Valleys (Diaz et al. 1995). The steep headwaters arise from mountain bogs between Pepeopae and Pu‘u Ali‘i just above an elevation of 1,219 m (4,000 ft) on the interfluvium that separates Waikolu and Pelekunu Valleys. The headwater reach drops rapidly to the midreach (500 m or 1,650 ft elevation) which has a moderate gradient and numerous small waterfalls and rapids. The mouth of Waikolu Stream consists of a relatively shallow boulder riffle (Brasher 1996, Polhemus 1996). The location of the opening to the sea can change as winter storms rearrange the boulder rampart at the shoreline. The water that originates from the bogs feeds the numerous tributaries that cascade over towering cliffs to eventually form the main-stem of Waikolu.

Fish

Fish values may be judged on the relative merits of fish populations, habitat, cultural use, recreational importance, or a combination of these river-related conditions.

Characteristic macrofauna of Hawaiian streams include five species of goby fishes: *Awaous guamensis* (o‘opu nakea), *Sicyopterus stimpsoni* (o‘opu nopili), *Lentipes concolor* (o‘opu alamo‘o); and the eleotrids *Eleotris sandwicensis* (o‘opu akupa) and *Stenogobius hawaiiensis* (o‘opu naniha). Two gastropods, *Neritina granosa* (hīhīwai) and the estuarine *Neritina vespertina* (hapawai), are common in many East Maui, Hawai‘i, Molokai and Kaua‘i streams. The shrimp *Atyoida bisulcata* (‘ōpae kalaole) inhabits the middle and upper reaches of pristine mountain streams statewide. The Hawaiian prawn *Macrobrachium grandimanus* (‘ōpae ‘oeha‘a) inhabits estuaries and the terminal reaches of streams.

All of these species share the same life history strategy referred to as amphidromy. All the Hawaiian amphidromous species exhibit ‘freshwater amphidromy’ where spawning takes place in freshwater, and the newly hatched larvae are swept into the sea by stream currents. While in the marine environment, the larvae undergo development as zooplankton before returning to freshwater to grow to maturity.

The lower reaches of Waikolu Stream contain a dense and diverse assemblage of native macrofauna. This portion of the stream provides habitat for all five native amphidromous fish species.

Overall, Waikolu Stream has one of the highest densities of stream gobies in the Hawaiian Islands, with total fish densities approaching 4 to 8 individuals per m2 (Brasher 1996, 1997a).

Wildlife

Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations, habitat, cultural uses, recreational importance, or a combination of these conditions. Of particular importance are species considered to be unique, and/or populations of federal or state listed (or candidate) threatened, endangered or sensitive species. Diversity of species is an important



Waikolu Valley. NPS photo.

consideration and could, in itself, lead to a determination of “outstandingly remarkable.”

Rare insect invertebrates can be found along the Waikolu watercourse. *Megalagrion pacificum* (listed as an endangered species by the U.S. Fish and Wildlife Service in 2010) and *Megalagrion xanthomeles* (listed as a candidate species by the U.S. Fish and Wildlife Service in 2008) have been recorded from Waikolu Stream. *Megalagrion nigrohamatum nigrohamatum*, a Species of Concern, has also been documented in Waikolu Stream. Waikolu also supports a dense population of the native Hawaiian stream snail *Neritina granosa* which can be uncommon in some streams due to overfishing or other causes.

The vegetation communities of the Waikolu watershed are dominated by native plants (as described in the Scenery section) and provide essential habitat for native forest birds, including rare and endangered species (NPS 1997). Six native forest birds have historically been recorded in Pu‘u Ali‘i NAR and the vicinity. Three are currently protected by federal or state law. More common native forest birds that have been recorded in the NAR include *Himatione sanguinea* (‘apapane), *Hemignathus virens wilsoni* (Maui ‘amakihi), and *Asio flammeus sandwichensis* (Hawaiian short-eared owl or pueo).

History

Historic values of a water system may contain sites that are associated with a historically important event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region.

Being the only dependable, year-round stream of fresh water in the vicinity of the Kalaupapa area, Waikolu Valley was extremely important to the Kalawao and Kalaupapa settlements from 1866 through the 1980s. For the newly arrived exiles to Kalawao, getting access to fresh potable water was a major problem from the very beginning, and there was rarely an adequate supply. With no fresh water springs nearby and no water transportation system in place, water for cooking and drinking had to be carried long distances in containers from Waikolu Stream. In the early years, patients often went thirsty. Scarcity of water contributed to unsanitary living conditions. There was not enough water for basic hygiene, cooking, washing clothes and soiled bandages (BOH Appendix M 1886b: cxiii; BOH Appendix N 1886b:cxxv). For patients in advanced stages of leprosy, the mile-long trek one-way on foot to Waikolu Stream was difficult

and next to impossible given their medical condition, especially if they did not own a horse.

When Father Damien arrived in May of 1873, he quickly realized the water supply problem would have to be solved if improvements were to be made in living conditions. The Board of Health had already been considering the idea of laying pipes from Waikolu to Kalawao, but this would be expensive. Seven years after the settlement’s establishment in summer of 1873, the Board of Health provided pipe for the first water system at Kalawao. Patients and kōkua helped to lay the pipe from Wai‘ale‘ia, an intermittent stream close to Kalawao, and built a rock-lined water cistern at Kalawao.

In addition to water, the settlement depended on the cultivation of kalo (taro) as an essential food. Father Damien understood the importance of diet on the effects of the disease. He saw that while the food in the settlement was of poor quality, that kalo seemed the easiest food to digest. Furthermore, he was aware of how significant kalo was to the early community, he noted not only the nutritional aspect, but also an emotional attachment to the crop. In 1877, Puna, wrote about Waikolu:

A wide and cool stream leads to the ocean from the foot of the dark green mountains. We follow its course when we get there, below the steep hills, on horseback or by foot. We go down below the palis [between Kalawao and Waikolu] every Wednesday to get our share of hard poi. When I first went below the pali I was filled with fear lest the stones fall down, for if you go and look upward the pali top juts over above as though you are going through a cave. I held in my dread. Our store house (for the Leper Colony) is situated at this place (Puna 1877 from Summers 1971: 185).

In 1891, pressure was put on the Board of Health to allow further kalo cultivation and settlement in Waikolu. Waikolu Valley was the host of much of the kalo cultivation to the settlement until at least 1905 and would be known as Waikolu Taro Plantation (Greene 1985: 207).

While the cistern at Kalawao was sufficient for about ten years, a growth in the patient population in the mid-1880’s proved taxing to the water system. The Wai‘ale‘ia and the Waihānau streams no longer provided enough water for an ever-growing community of patient settlers. The Board once again weighed the possibility of bringing in water from Waikolu Valley. The distance was much

farther but Waikolu was a perennial stream. At first, water from Waikolu was piped from Notley Springs on the eastern slope of the pali.

Initially, the Waikolu pipeline only went to Kalawao. But as demands increased, the pipeline was extended to Kalaupapa and enlarged from a four-inch pipe in the 1880s to an eight-inch pipe in 1894. For protection, the eight-inch pipe was buried underground whenever possible, going down the pali, across Waikolu Valley, then running west at the base of the pali along the boulder beach, across and up the gulch and onto the Kalawao end of the peninsula.

Maintaining the pipeline to Waikolu was plagued with problems that went on for nearly 100 years. The pipeline was battered by natural elements – winter storms, falling rocks from the pali above, and landslides triggered by earth-quakes. Broken joints and smashed pipes constantly needed repair. There was no back-up and the settlement did not have a source of water during emergencies. In 1894, the Board recommended construction of a reservoir to supply water to the settlement during such times. Two stone reservoirs (50,000 and 150,000 gallons) were built on high ground between Kalawao and Kalaupapa. Both reservoirs are still intact.

From 1908–48, there were several extensions and modifications to the water system. In 1908, the United States Leprosy Investigation Station (UCLIS) was established at Kalawao and a pipeline extension to the head of the valley was constructed where it connected to an old ‘auwai (irrigation ditches) system for lo‘i kalo (wetland taro). At this time, the Notley reservoir system consisting of three catch basins was enlarged. In 1912, the Board extended the water line further up the valley to connect with an old ‘auwai at 2,200 feet to ensure a reliable water supply. Thinking that ditch water was unsanitary, the Board felt that a flume would provide cleaner water, so a wooden flume was built and reached 2800 feet up the valley. (NPS 1998-1999:8) In 1931, a 750,000 gallon tank was constructed that increased the storage capacity to over one million gallons of water. (NPS 1998-1999:7-8) In 1937, the Waikolu water system was overhauled and reconstructed. The new system utilized updated features (concrete Hume pipes and cast-iron pipe instead of wood flumes) that greatly improved the quality of the water to the settlement. The new system also included an updated water intake. In 1948, the Waikolu water system was lengthened one last time. The head reaches about the 560 foot elevation, five miles from Kalaupapa. This time, the intake drew water from main Waikolu Stream. This system was used until the 1980s.

In the late 1960s, the beach portion of the pipeline was dug up and mounted on concrete trestles. To provide access for repairs and facilitate travel across the rough boulder beach, a wood walkway was built over the trestles. Over time, this arrangement proved to be unsatisfactory. The pipeline was now even more exposed to falling rocks, landslides and storms and repairs increased. In the 1970s, PVC pipe was used for quick repairs but the plastic pipe could not hold the waterline pressure. A good solution for protecting the Waikolu pipeline across the boulder beach segment was never found (NPS Report 1998-1999:5-6)

In 1980, Kalaupapa National Historical Park was established and one of its mandates was to “provide a well-maintained community” which involved ensuring a reliable and well maintained water system. Instead of Waikolu Stream, Waihānau was chosen for the site of a new well that was completed in 1983. A second well was added in 1985. Today, the Kalaupapa water system relies on water from Waihānau Valley instead of Waikolu.

Site Integrity

The Waikolu water pipeline components and access road are in good condition; much of the remaining pieces are unmodified and retain original character. A dam at Waikolu Stream is also in good condition; it is unmodified and retains its original character. These historic features are the only examples of the important water system to the Kalaupapa Leprosy Settlement National Historic Landmark (NHL).

Terraces for kalo cultivation associated with the leprosy settlement period in Waikolu Valley exhibit two construction styles. The first is native Hawaiian construction and the second is thought to be done by Chinese immigrant cultivators. The terraces are unmodified, retain their original character, and are in very good condition. Furthermore, these terraces are exceptional examples of kalo terraces within this region (Kirch 2002).

Educational or Interpretative Opportunities

The kalo terraces and water pipeline components at Waikolu reveal the unique history of the Kalaupapa leprosy settlement. The features have high integrity and exhibit several aspects of life at Kalaupapa that could be interpreted for the public. These include the needs of the community, the Board of Health’s responses to community’s need for water, the engineering structures to convey water in the early periods, and the hard work and hardships experiences by

patients in ill health. Hiking the trek to Waikolu illustrates the difficulties that the early patients had to endure. Other educational and interpretive opportunities could be more hands-on through site stabilization projects of the kalo terraces.

Designations

The Waikolu Stream, water pipeline, and archeological features contribute to the Kalaupapa Leprosy Settlement NHL.

The water pipeline components at Waikolu are directly associated with the leprosy settlement period and are characteristic of an impressive water system that was the only reliable source of water to the peninsula for decades. The water pipeline components are eligible for listing on the National Register under criteria A and C.

The kalo terraces are eligible for listing on the National Register under criteria A, C, and D. They are associated with the leprosy settlement. There are at least two styles of construction in the corridor that show impressive utilization of the resources. There is a recognized opportunity for these terraces to yield more data, not only on kalo cultivation, but also on life in the Waikolu Valley and the similarities and differences between Hawaiian cultivators and immigrant cultivators.

Culture

Cultural values include sites, events, and related factors contributing to notable or important cultural features or attractions within the region. Cultural sites associated with Native Hawaiians may be highly diverse over the majority of the river corridor.

Waikolu contains evidence of pre-contact habitation, which include sacred places, mo’olelo (a story, tale, myth or legend) and agriculture. Waikolu means “Three Waters” or “Triple Water” and Kili’o’opu is the name of its wind (Summers 1971: 185). Waikolu is an ahupua’a that is comprised of a narrow

valley and bounded by two sharp points of land and three small islets. In the mid 1850’s Voyaging Naturalist M. Jules Remy toured the Island of Molokai and described Waikolu as “. . . a village situated at the opening of a valley which marked, to the west, the limit of the insurmountable pali of Moloka’i.” In 1931 Arning said “In crossing the Pali between Kalawao and Waikolo [sic] the natives deposited oval stones on the dangerous hills. This custom was, during my stay, still rigidly observed” (Arning 1931 from Summers 1971:185). These early written descriptions provide a glimpse of native Hawaiian life in the Waikolu Valley and adjacent area.



NPS scientists and volunteers take streambed measurements of Waikolu Stream. NPS photo.

Several different types of archeological features exist in Waikolu and are evidence of ongoing habitation and agriculture in pre-contact Hawaiian history. These include heiau (Hawaiian pre-Christian places of worship or shrines), lo’i kalo, and a variety of other archeological features. “The valley and its sites exemplify the extremes of windward valley adaptation in the Hawaiian archipelago” (Kirch 2002:46).

There are three heiau that were noted to be located at Waikolu. One heiau, ‘Ahina, has been located. The other two heiau have not been located, even with efforts in 1909 by Stokes of the Bishop Museum. Stokes was unable to gather information on the second heiau, Ka’aiea. The other heiau, Moa’ula, is described in 1909 as being “out of human reach” high up on the pali, and is credited as being built by “Menehunes” (Stokes 1909).

Prior to 1866, Hawaiians utilized water from Waikolu Stream to support the many lo’i kalo on the terraced mountain slopes of Waikolu Valley. A charcoal sample from a stratigraphic layer interpreted as being associated with human occupation dates to 1200-1290, which corresponds to the Early Expansion Period in terms of island chronology. See Kirch (2002) and McCoy (2007), for further information.

Also part of Waikolu ahupua’a are two points. The first is called Leinapapio. It is described by Coelho.

This place was famous for this is where the people learned to leap over the cliffs in the olden days. From Huelo [an island] came the loulu palm leaves which were woven into hammocks, like the thick floor mats. A man was laid thereon and was tossed into the sea. This game was somewhat like the darts made of pieces of heavy paper by the children. The first Hawaiian who originated this game of leaping off the cliff, like an aeroplane, was Papio. Because the game was such fun, the pali was named Leinapapio, that is Papio’s leaping place. . . .a place from which Papio leaped (Coelho 1922 from Summers 1971: 185-186.)

The other point is Kuka’iwa’a, which is a vast archaeological landscape but largely unrecorded. The archeology site types include platforms, mounds, terraces, enclosures with several possible functions, including heiau, ko’a and ku’ula, and burial sites (NPS Field Notes 2009). Ko’a are fishing grounds, usually identified by lining up with marks on shore or a shrine, often consisting of circular piles of coral or stone, built along the shore or by ponds or streams, used in ceremonies as to make fish multiply (Pukui and Elbert 1986: 156). Ku’ula, which is any stone god used to attract fish, whether tiny or enormous, carved or natural, named for the god of fisherman; heiau near the sea for work-ship of fish gods (Pukui and Elbert 1986: 187). The area is currently targeted by the NPS for native outplanting sites.

The islets in the ocean off of Waikolu are known as the “Rocks of Kana” and their presence are described in mo’olelo, see Fornander (1916-1917: 444, 446).

Although not yet fully inventoried, Waikolu is remote and isolated, and it is presumed that a high level of intact archeology is in good condition showing a wide variety of site types enabling better understandings of native Hawaiian life in the north shore valleys.

Current Use

Waikolu Stream is important to native Hawaiians today because of the ability to perform traditional cultural practices. It is also important because of its rich landscape of cultural sites and mo’olelo. At present, it is protected and rarely visited because of its remote location and State of Hawai’i rules for visitation to the Kalaupapa Settlement. There is some limited use by Kalaupapa workers for gathering of plants, and fishing both in the ocean and the freshwater stream. There is also limited and infrequent use by hunters in the upper reaches of the valley.

Site Integrity

There are extensive sets of formerly irrigated lo’i kalo on both sides of Waikolu Stream exhibiting distinctly Hawaiian architectural construction. The Hawaiian construction terraces are unmodified and retain their original character; they also are exceptional examples of this site type in the region and are in good condition.

The heiau site named ‘Ahina, first recorded by Stokes in 1909, is still present. The main terrace wall is well constructed but covered in vegetation (Kirch 2002). A stabilization project to remove invasive vegetation with a cultural cyclic maintenance plan would keep vegetation away. The heiau is unmodified and retains its original character; it is in good condition and provides an example of valley heiau within the region.

Educational or Interpretative Opportunities

There is an opportunity to share native Hawaiian traditions and practices at Waikolu with student groups, native Hawaiian organizations, and those seeking an in-depth visit to Kalaupapa NHP. Archeological investigations and stabilization projects at Waikolu would illustrate how early Hawaiians lived in the remote valleys as well as assist the NPS archeology program. Hands-on educational and interpretive opportunities could be afforded through site stabilization projects targeting ‘Ahina Heiau and the kalo terraces.

Designations

All of the archeology associated with the Kalaupapa Leprosy Settlement and within the Kalaupapa NHP contributes to the NHL designation.

‘Ahina Heiau, the kalo terraces, and other archaeological resources are eligible for listing on the National Register under criteria C and D. They are characteristic of specific and distinct Hawaiian construction, and provide prime opportunities to yield more data about early occupation of Waikolu Valley.

Waikolu Valley, like the rest of Kalawao County, is incredibly important to native Hawaiians and the resident patient community. The valley has been accessed for subsistence living from the first inhabitants through today. Because there was a displacement period of the native kama’āina, there is great interest for people to re-connect to this landscape, especially since the mo’olelo and archaeological sites are so well intact with a high degree of integrity. For this

reason, it is likely that an in-depth look at the cultural importance of the valley would reveal eligibility for designation as a Traditional Cultural Property.

Classification

In the 1993 listing of Waikolu Stream on the National Rivers Inventory, Waikolu Stream was classified as both Wild and Scenic. This report supports the continued classification of Waikolu Stream as both Wild and Scenic.

Conclusions

The three main steps involved in a WSR study are eligibility, classification, and suitability analysis.

The eligibility analysis is a resource inventory and evaluation to determine if the river is free-flowing and possesses one or more outstandingly remarkable value. This document verifies the initial evidence leading to the 1993 listing of Waikolu as eligible for designation as a Wild and Scenic River based on *scenery*, *fish*, and *wildlife* as outstandingly remarkable values.

The majestic topography comprised of perched bogs bisected by deep ravines broken by cascading waterfalls is reason enough for identifying scenery as an ORV. The native rainforest and bog communities enhance the scenery and provide habitat for rare birds leading to wildlife as an ORV for Waikolu.

Aquatic biologists in Hawai‘i consider the presence of native amphidromous species as an indicator of outstanding environmental quality. The presence of five native amphidromous fish and one mollusk at relatively high densities indicate favorable aquatic conditions. Furthermore, the presence of invertebrates considered rare or indicative of high water quality (DAR 2008) are testament to favorable aquatic conditions (despite water diversions) and the establishment of *fish* as an ORV. The 2008 DAR study supports the identification of Waikolu as a “Priority Aquatic Site” by the Nature Conservancy, one of the reasons for the 1993 eligibility listing.

Waikolu Stream provided fresh water for human use for over 100 years to the Hansen’s disease patient communities at Kalawao and Kalaupapa. The pipeline and engineered water system traversed steep cliffs, rocky surf, and travelled for nearly three miles from Waikolu to Kalaupapa Settlement. Waikolu Stream and

the engineered system to convey the water are largely unmodified and in good condition and are contributing features to the Kalaupapa Leprosy Settlement NHL. These important features lead to *history* as an ORV for Waikolu Stream.

This analysis recommends the addition of *culture* as an ORV for Waikolu Stream. The lo‘i kalo represent extensive utility of the valley and some of the earliest occupation throughout the Hawaiian archipelago. Because of Waikolu’s remoteness and it being within Kalawao County, it has remained relatively untouched and represents an example of valley habitation with high integrity and importance. Waikolu Stream and associated archaeological and cultural sites contribute to the Kalaupapa Leprosy Settlement NHL.

The identification of *scenery*, *fish*, *wildlife*, *history* and *culture* as ORVs supports the continued eligibility of Waikolu Stream, and its existing level of development continues to support the classification of Waikolu as Wild and Scenic. The current lack of public access precludes recreation as an outstandingly remarkable value. Sudden storm-mediated water-flows coupled with remoteness and rugged topography make recreation dangerous. The difficulty in delivering medical aid in the event of a mishap make it unlikely that recreation activities would ever be developed within Waikolu valley.

An examination of information, much collected since 1993, support the continued listing of Waikolu as eligible for designation as a Wild and Scenic River. Final suitability determination is based on an assessment of the characteristics that make the river segments worthy of designation; the ability of NPS and its non-Federal partners to manage the river segments to protect their ORVs, water-quality, and free-flow; the compatibility of wild and scenic river designation with other potential uses of the river segments; and public support and involvement. An issue facing its suitability for WSR designation is future flow management— whether flow-dependent ORVs and water quality can be protected and enhanced in light of community needs for water supply and consequent alterations to the river’s natural flow regime. Designation of eligible and suitable river segments into the National WSR System on NPS managed lands would be decided through a Congressional Act. The necessary suitability assessment would be completed within the life-span of the general management plan.

References:

Arning, Edward
1931 *Ethnographic Notes on Hawaii 1883–1886*. Ms., partial translation from the German by Elsa C. Thot. Hamburg.

Brasher, A. M.
1996 “Monitoring the Distribution and Abundance of Native Gobies (‘o‘opu) in Waikolu and Pelekunu Stream on the Island of Moloka‘i.” Cooperative National Park Resources Studies Unit Technical Report 113. Honolulu, HI: University of Hawai‘i at Manoa.

1997a “Habitat Use by Fish (‘o‘opu), Snails (hihiwai), Shrimp (‘opae) and Prawns in Two Streams on the Island of Moloka‘i.” Cooperative National Park Resources Studies Unit Technical Report 116. Honolulu, HI: University of Hawai‘i at Manoa.

1997b “Life History Characteristics of the Native Hawaiian Stream Snail *Neritina granosa* (hihiwai).” Cooperative National Park Resources Studies Unit Technical Report 114. Honolulu, HI: University of Hawai‘i at Manoa.

Coelho, W. J.
1922 “A Trip to Moloka‘i.” *Ka Nupepa Ku‘oko‘a, September 14, 1922*. Ms. translation by M. K. Pukui.

Damien, J.
1886 “Special Report from Rev. Father J. Damien, Catholic Priest at Kalawao. Personal Experience During Thirteen Years of Labor Among the Lepers at Kalawao,” March 1, 1886. Ms., Hawai‘i State Archives, Honolulu, HI.

DeVerse, K. and E. DiDonato
2006 “Appendix I: Water Quality Report.” In *Pacific Island Network Vital Signs Monitoring Plan: Phase III* (draft) report, by L. HaySmith, F. L. Klasner, S. H. Stephens, and G. H. Dicus. Hawai‘i National Park, HI: National Park Service, Pacific Island Network.

Diaz, G. E., O. Elbadawy, J. C. Hughes and J. D. Salas
1995 “In Search of Hydrologic Similarity: A Case Study on Molokai, Hawaii.” In *Proceedings of the Summer Symposium, American Water Resources Association*, edited by R. Herrmann, W. Black, R. C. Sidle, and A. I. Johnson. Honolulu, HI.

Fornander, Abraham
1916–17 “Hawaiian Antiquities and folk-lore.” Bishop Museum Memoirs 4, Honolulu, HI.

Greene, Linda W.
1985 *Exile in Paradise: The Isolation of Hawai‘i’s Leprosy Victims and Development of Kalaupapa Settlement, 1865 to Present*. Historic Resource Study, prepared for the National Park Service, Denver Service Center, Denver, CO.

Hawai‘i Natural Heritage Program
1989 “Pu‘u Ali‘i Natural Area Reserve Resource Information, Notebook 1.” Prepared for State of Hawaii, Natural Area Reserves System. Hawai‘i Heritage Program, The Nature Conservancy of Hawai‘i, Honolulu, HI.

Kirch, Patrick V.
2002 *From the ‘Cliffs of Keōlewa’ to the ‘Sea of Papaloa’: An Archaeological Reconnaissance of Portions of the Kalaupapa National Historical Park, Moloka‘i, Hawaiian Islands*. Oceanic Archaeology Laboratory Special Publication No.2. Archaeological Research Facility, University of California at Berkeley.

McCoy, Mark D.
2007 “A Revised late Holocene Culture History for Moloka‘i Island, Hawaii.” *Radiocarbon* 49.3 (2007): 1273–1322.

National Park Service
1996 “Baseline Water Quality Data Inventory and Analysis: Kalaupapa National Historical Park.” Water Resources Division. Technical Report NPS/NRWRD/NRTR-96/81 Fort Collins, CO.

1998–99 *Kalaupapa Water Supply System*. Historic American Engineering Record: HAER No. HI-42. Washington, DC: Library of Congress.

2006 Field Notes on Kuka‘iwa‘a, Jennifer Cerny.

2012 *Draft Foundation Statement: Kalaupapa National Historical Park.* Kalaupapa, Moloka‘i, HI: Kalaupapa NHP.

2008 Field Notes on Kuka‘iwa‘a, Erika Stein.

Polhemus, D. A.

1996 “The Orangeblack Hawaiian Damselfly, *Megalagrion xanthomelas* (Odonata: Coenagrionidae): Clarifying the Current Range of a Threatened Species.” *Bishop Museum Occasional Papers* 45: 30–53.

Pukui, Mary Kawena and Samuel H. Elbert

1986 *Hawaiian Dictionary: Hawaiian-English, English-Hawaiian.* Revised and Enlarged Edition. Honolulu, HI: University of Hawai‘i Press.

Puna, D.

1877 “Sad Sights of the Enclosed Kingdom.” *Ka Lahui Hawai‘i*, December 6, 1877. Ms. translation by M. K. Pukui.

Remy, M. Jules

1893 *L’Île de Molokai avant la léproserie: journal de M. Jules Remy.* Arcis-sur-Aube, France: Imprimerie Léon Frémont. Translated by Mildred M. Knowlton for C. C. Summers, Oct. 1975, copy in Bishop Museum Library, Honolulu, HI. Transcribed by Sam ‘Ohukani‘ōhi‘a Gon III, March 2008.

State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Resources

2008 Freshwater Database. http://www.state.hi.us/dlnr/dar/streams/streams_survey_data.htm>.

State of Hawai‘i, Department of Land and Natural Resources, Commission on Water Resource Management

1990 “Hawai‘i stream assessment: A preliminary appraisal of Hawai‘i’s stream resources,” by the National Park Service, Hawai‘i Cooperative Park Service Unit, Western Region Natural Resources and Research Division, Report R84. Honolulu, HI.

Stokes, John F. G.

1909 *Molokai, Survey of Heiau.* Ms on file at Bishop Museum Archives, Honolulu.

Summers, Catherine C.

1971 “Moloka‘i : A Site Survey.” *Pacific Anthropological Records* 14. Honolulu, HI: Bishop Museum Department of Anthropology.

Takasaki, K. J.

1986 *Results of Exploratory Drilling for Water in Waihānau Valley, Moloka‘i, Hawaii.* USGS Water-Resources Investigations Report 85-4332, Honolulu, HI.

The Nature Conservancy

2003 *Pelekunu Preserve Long-Range Management Plan, Fiscal Years 2004–2009.* Moloka‘i, HI: Submitted to the Department of Land and Natural Resources, Natural Area Partnership Program.

U.S. Fish and Wildlife Service

2010 “Listing the Flying Earwig Hawaiian Damselfly (*Megalagrion nesiotes*) and Pacific Hawaiian Damselfly (*Megalagrion pacificum*) As Endangered Throughout Their Ranges.” *Federal Register* 75: 35990–36012.

2008 “Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions.” *Federal Register* 73(238): 75176-75244.

Appendix F: Building Inventory List

The following list of buildings was developed by the NPS in 2012.

Description	Street/Location	Date Built	Build-ing #	LCS #	FMSS #	Mgmt
Beach House: Hamai Shoichi	Airport Rd.	1920	693	59701	60090	Private
Beach House: Elizabeth Bell	Airport Rd.	1920	698	101911	60240	Private
Beach House (Nicholas Ramos)	Airport Rd.	1920	691	56196	60243	Private
Storage Shed (behind Beach House #691)	Airport Rd.	1920	690	56207	60231	Private
Airport Terminal	Airport Rd.	1930	703	59989	58881	DOT
Beach House: Elaine Remigio	Airport Rd.	1930	695	336829	58883	Private
Beach House: Bernard Punikaia	Airport Rd.	1930	699	56122	58882	Private
Lions Club Restroom	Airport Rd.	1950	687	55730	60097	Private
Lions Club Pavilion	Airport Rd.	1965	688	56611	60096	Private
Beach House: Gloria and Richard Marks	Airport Rd.	1969	694	324319	60242	Private
Shelter 1 (Lion's Club Bar)	Airport Rd.	1969	727	NH	239505	Private
Shelter 2 (Lionn's Club Kitchen)	Airport Rd.	1974	728	NH	239506	Private
Airport Storage: Kamaka Air (Replaced #705)	Airport Rd.	1984	818	NH	60228	DOT

Description	Street/Location	Date Built	Build-ing #	LCS #	FMSS #	Mgmt
Airport ops Bldg. (Replaced #704)	Airport Rd.	1984	816	573939	99307	DOT
Beach House Meli Watanuki	Airport Rd.	2008	722		99302	Private
Pig Sty at New Baldwin Home	Baldwin Home	1940	852*	373536	99315	NPS
Residence: (Nakoa)	Baldwin St.	1931	181	59966	58611	DOH
Residence: (Mamuad)	Baldwin St.	1936	161	59965	58630	DOH
Garage	Baldwin St.	1950	588	55771	58567	Private
Residence: (Ai) Katherine Costales	Baldwin St.	1956	178-56	55775	58626	DOH
Residence: Nellie McCarthy	Baldwin St.	1956	173-56	55776	58627	DOH
Residence: (Mario Rea)–NPS Superintendent	Baldwin St.	1956	172-56	55777	58629	NPS
Residence: (Eddie and Barbara Marks)	Baldwin St.	1962	182-62	55770	58608	NPS
Residence: (Mary Yonemori)	Baldwin St.	1962	179-62	55772	58613	DOH
Garage (Near #173-56)	Baldwin St.	1969	585	573560	58596	Private
Wilcox Memorial Building	Bayview	1906	277BV	21052	49842	DOH
Old Bayview Home Kitchen and Dining Hall: Re-use as NPS Resources Office	Bayview	1916	6BV	21047	57581	NPS

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Residence: (Mable and Joe Kekahuna)	Kamehameha St.	1936	15	55726	58664	DOH
Residence: Norbert Palea	Kamehameha St.	1936	25	59951	58667	DOH
Residence: (Mae Malakaua)	Kamehameha St.	1938	56	22629	49086	DOH
Kanaana Hou Church Parish Hall	Kamehameha St.	1939	287	342044	57597	Partner
Motor Pool Gas Station	Kamehameha St.	1939	258a	59973	58249	DOH
Motor Pool Garage	Kamehameha St.	1939	259	59974	58248	DOH
Latter-day Saints Church	Kamehameha St.	1940	257	56610	58658	Private
Latter-day Saints Parish Hall	Kamehameha St.	1940	257a	59972	58659	Private
NPS Mechanics Garage (from Bishop Home 1980)	Kamehameha St.	1944	284	573509	57595	NPS
Storage Shed (behind #56)	Kamehameha St.	1969	664	573930	49085	Private
Storage Shed (No. side of #4)	Kamehameha St.	1969	4a	573888	58640	Private
Storage Shed	Kamehameha St.	1970	670	55728	59400	Private
Ambulance Garage	Kamehameha St.	1991	314*	NH	99290	DOH
Vehicle/Equip- ment Storage	Kamehameha St.	1991	259a	NH	99328	DOH
Garage (Large Equipment–DOH)	Kamehameha St.	1995	315*	NH	99298	DOH

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Garage/HAZMAT	Kamehameha St.	2004	316*	NH	99299	NPS
Residence: (Ernest Kala)	Kapiolani St.	1932	199	55704	59570	NPS
Residence: Hamai Shoichi	Kilohana St.	1932	53	59954	58272	DOH
Garage, Kilohana St.	Kilohana St.	1935	643	573920	58273	Private
Molokai Light- house Princi- pal Keepers Residence	Lighthouse Area	1909	707	341337	60093	NPS
Molokai Lighthouse	Lighthouse Area	1909	715	21176	58875	NPS
Molokai Light- house Water Tank	Lighthouse Area	1909	712	21174	58879	NPS
Molokai Light- house Generator Shed	Lighthouse Area	1909	713	59999	58880	NPS
Molokai Light- house Garage	Lighthouse Area	1909	709	340719	60095	NPS
Molokai Light- house Storage Vault	Lighthouse Area	1909	714	21175	58878	NPS
Molokai Lighthouse Asst. Keepers Residence	Lighthouse Area	1950	706	232237	58877	NPS
Molokai Light- house Storage Shed (LCS #56121?)	Lighthouse Area	1950	708	341389	60235	NPS
Transmitter Repeater Building	Lighthouse Area	1991	715a		59590	NPS

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Bayview Home Residence 2	Bayview	1916	2BV	21044	57584	NPS
Bayview Home Residence 3	Bayview	1916	3BV	21045	57585	NPS
Bayview Home Residence	Bayview	1916	1BV	21043	57580	DOH
Bayview Home Chapel: Re-use as Pool Hall	Bayview	1928	8BV	21049	59073	DOH
Bayview Home Residence	Bayview	1929	10aBV	21050	49847	NPS
Garage: (Ike's) moved to Kame- hameha St.	Bayview	1930	65BV	101952	58181	Private
Bay View Lanai	Bayview	1930	528BV	55721	49849	DOH
Visitors Quarters Kitchen	Bayview	1933	275BV	56539	49852	DOH
Visitors Pavilion: aka Long House	Bayview	1933	278BV	21069	49841	DOH
Visitors Quarters	Bayview	1933	274BV	21051	49853	DOH
Residence: Elroy [Makia] Malo	Bayview	1936	64BV	56512	58180	DOH
Residence: DOH Administrator	Bayview	1936	11BV	56511	49848	DOH
Bayview Home Dining Hall	Bayview	1937	5BV	21046	57602	NPS
Garage	Bayview	1937	513BV	55723	58188	NPS
Garage	Bayview	1937	512BV	55722	58187	Private
Patients Restroom	Bayview	1940	523BV	22638	49845	DOH
Quonset Dormitory	Bayview	1950	10BV	338860	58179	DOH
Garage	Bayview	1950	525BV	55719	49844	Private
Garage	Bayview	1950	524BV	55718	49846	Private

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Toolshed	Bayview	1969	3aBV	573881	59209	Private
Telephone Station	Bayview	1969	522BV	59993	49843	DOH
Carport	Bayview	1970	526BV	55720	49850	DOH
Old Stone Church: Re-use NPS Ranger Station	Beretania St.	1853	301	21064	49083	NPS
Paschoal Hall (Social Hall/Movie House)	Beretania St.	1915	304	21065	57605	NPS
Craft and Storage Building (former Bakery)	Beretania St.	1931	300	22634	49084	NPS
Police Headquarters	Beretania St.	1932	303	22636	57604	NPS
Jail	Beretania St.	1932	302	22635	60246	NPS
Construction Camp Wash House	Beretania St.	1940	656	55786	58682	NPS
Construction Camp Residence	Beretania St.	1950	657a	55813	58684	NPS
Administration Building: Depart- ment of Health	Beretania St.	1961	270-61	56608	49087	DOH
NPS Garage	Beretania St.	2005	301a	NH	57603	NPS
Curatorial Storage Facility	Beretania St.	2006	313*		93491	NPS
Residence: Barbara Marks	Bishop Home	1933	3BH	56499	58538	DOH
Residence: (Anita Una)	Bishop Home	1933	4BH	56500	58540	DOH

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Sisters Convent	Bishop Home	1934	15BH	21041	58541	NPS
St. Elizabeth Chapel	Bishop Home	1934	16BH	21042	58543	Partner
Carport	Bishop Home	1969	3aBH	573877	99504	Private
Garage	Bishop St.	1920	622	55740	58423	Private
Garage	Bishop St.	1930	621	55738	58425	Private
Residence: Paul and Winnie Harada	Bishop St.	1962	122-62	56609	58426	DOH
Residence: John Arruda	Bishop St.	1964	121-64	55802	58422	DOH
St. Francis Catholic Church	Damien Rd.	1908	291	21063	49838	Partner
Damien Hall: St. Francis Church Hall/Library	Damien Rd.	1909	292	56536	49837	Partner
Water Tank (below ground)	Damien Rd.	1925	854*	573952	99317	NPS
Carpenter Shop (Laundry)	Damien Rd.	1930	264	59978	58267	DOH
Comfort Station (Pier)	Damien Rd.	1930	640	59988	58279	DOH
NPS Carpenter Shop (ops Shop)	Damien Rd.	1931	265	59979	58269	NPS
St. Francis Catholic Church Rectory	Damien Rd.	1931	294	56502	49192	DOH
Ice Plant: aka Butcher Shop/ Freezer— Re-use Electrical Shop	Damien Rd.	1932	267/ 268	59980	58276	NPS

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
General Warehouse (located at Pier)	Damien Rd.	1932	271	59981	58923	DOH
Residence:	Damien Rd.	1932	26	59952	58631	NPS
Patient Store	Damien Rd.	1934	272	59982	49191	DOH
Gas Station	Damien Rd.	1934	273	59984	49839	DOH
Crematory: Re-use Storage	Damien Rd.	1938	262	59975	58265	DOH
Residence: (Louie and Sarah Benjamin)	Damien Rd.	1939	30	59953	58666	NPS
Oceanside Pavilion (located near pier)	Damien Rd.	1939	638	59986	49840	DOH
Plumbing Warehouse	Damien Rd.	1939	263	59976	60254	DOH
St. Francis Church Garage	Damien Rd.	1939	647	56537	49193	Private
Electrical Transformer Station	Damien Rd.	1940	519BV	342032	58194	NPS
Shelter/Garage	Damien Rd.	1940	533	55665	58492	Private
Garage	Damien Rd.	1940	531	55664	58496	Private
Garage	Damien Rd.	1940	547	55702	58588	Private
Quonset: Lumber Warehouse	Damien Rd.	1950	263a	59977	58271	DOH
Residence: (Sumi Sumida)	Damien Rd.	1956	111-56	55698	58483	DOH

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Residence: (Hideo Matsuda)	Damien Rd.	1956	112-56	55699	58479	DOH
Residence: Meli Watanuki	Damien Rd.	1956	108-56	55695	58491	DOH
Residence: Katherine Puahala	Damien Rd.	1956	107-56	55663	58493	DOH
Residence: (Duarte)	Damien Rd.	1962	159-62	55700	58464	DOH
Residence: Clarence and Ivy Kahilihiwa	Damien Rd.	1962	106-62	55662	58495	DOH
Residence: Richard Pupule	Damien Rd.	1962	105-62	55644	58537	DOH
Residence: (Mary Kailiwai)	Damien Rd.	1964	110-64	55697	58487	DOH
Residence: (Eracleo Augustine)	Damien Rd.	1964	311-64	55701	58628	NPS
Garage (between #111 and #110)	Damien Rd.	1969	557	55707	58486	Private
St. Francis Church Hothouse	Damien Rd.	1972	648	573929	49194	Private
Carport (behind #106)	Damien Rd.	1977	532	573523	58494	Private
Storage Shed	Damien Rd.	1978	532a	573908	238968	Private
Store Warehouse (Replaced Bldg. #272a)	Damien Rd.	1980	312*	NH	99326	DOH
Kal Memorial Hospital	Damien Rd.	1981	814	56606	59074	DOH
Beach House (Richard Marks)	East Coast Peninsula	1969	856*	573955	99319	Private

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Outhouse for #856	East Coast Peninsula	1969	857*	573956	99320	Private
Residence: (Leonardo Nono)	Goodhue St.	1931	115	59957	57589	NPS
Residence: (Clarence Naia)	Goodhue St.	1931	114	22630	57588	DOH
Residence: Elaine Remigio	Goodhue St.	1931	116	59958	57590	DOH
Shed: Sagadraca Poker Room	Goodhue St.	1940	605	55807	57610	NPS
Garage	Goodhue St.	1950	613	55805	57617	Private
Garage	Goodhue St.	1950	614	55803	57618	Private
Garage	Goodhue St.	1950	609	55808	57613	Private
Storage Shed	Goodhue St.	1950	612	338619	57616	Private
Residence: (Antonio Sagadraca)	Goodhue St.	1962	117-62	55804	57591	NPS
Storage Shed	Goodhue St.	1969	611	55806	57615	Private
Garage	Haleakala St.	1930	587	55773	58568	Private
Garage	Haleakala St.	1969	566	573911	58578	Private
Shed (In Bus Storage Area)	Haleakala St.	1969	598	573915	99552	Private
Garage	Kaiulani St.	1920	564	55783	58574	Private
Garage	Kaiulani St.	1920	568	344990	58580	Private
Garden House	Kaiulani St.	1920	569	102323	58581	Private
Garage	Kaiulani St.	1930	570	55815	58582	Private

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Residence: Pauline Chow	Kaiulani St.	1931	185-71	59967	58615	DOH
Residence: (Domingo Soria)	Kaiulani St.	1931	190-66	59969	58625	NPS
Residence: Sebastiana Fernandez	Kaiulani St.	1931	192	59970	58632	DOH
Residence: Kuulei Bell	Kaiulani St.	1932	189	59968	58623	DOH
Garage	Kaiulani St.	1940	563	55817	58573	Private
Residence: Gloria Marks (Kaliko)	Kaiulani St.	1964	186-64	55782	58617	DOH
Residence: Richard Marks	Kaiulani St.	1964	187-64	55780	58620	DOH
Carport: Richard Marks	Kaiulani St.	1969	187b *	573904	59401	Private
Bottle House (enclosed carport): Richard Marks	Kaiulani St.	1969	187a *	573890	59402	Private
Garage	Kaiulani St.	1969	571	55779	58633	Private
Storage Shed	Kaiulani St.	1969	572	344095	58634	Private
Storage Shed	Kaiulani St.	1970	573	55778	58635	Private
Storage Shed	Kaiulani St.	1971	574a	573912	99300	Private
St. Philomena Church	Kalawao	1872	711	21068	58852	Partner
Siloama Restroom	Kalawao	1945	720	59992	58874	Partner
Kalawao Pavillion: Judd Park	Kalawao	1950	719	342332	60255	NPS
Picnic Shelter 1	Kalawao	1955	725*	573935	239502	NPS
Picnic Shelter 2	Kalawao	1955	726*	573935	239504	NPS
Siloama Church	Kalawao	1966	710	21067	58859	Partner
Shed (near Judd Park Pavilion)	Kalawao	1991	723	NH	99507	Private

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Kanaana Hou Church	Kamehameha St.	1915	286	21062	57596	Partner
Beach House: Olivia Breitha	Kamehameha St.	1930	671	55729	60244	Private
Residence: Plumeria House	Kamehameha St.	1930	22	55724	58674	Private
Residence: (Miriam Mina)	Kamehameha St.	1931	2	235713	58660	NPS
Residence: (Silva)	Kamehameha St.	1931	7	55800	58663	DOH
Residence: (Keao)	Kamehameha St.	1931	9	56104	58665	DOH
Residence: (Cambra)	Kamehameha St.	1931	4	341955	58662	DOH
Kamahana Store	Kamehameha St.	1932	260	59990	59252	Private
Calvinist Mission House: aka Calvinist Parsonage	Kamehameha St.	1932	288	59994	57598	DOH
Residence: (Brown)— moved from Mc Veigh 1965	Kamehameha St.	1933	3	333837	58661	NPS
Post Office and Court House	Kamehameha St.	1934	290	22687	49088	DOH
Residence: Latter Day Saints Rectory	Kamehameha St.	1935	256	59971	58657	Partner
Garage (near Calvinist Mission House)	Kamehameha St.	1935	289	573907	59076	Private
Fumigation Hall	Kamehameha St.	1935	283BH	22633	57594	NPS

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
AJA Buddhist Hall: Re-use Bookstore/ Museum	McKinley St.	1910	308	21066	58442	NPS
AJA Outbuilding: Re-use Bookstore—Storage	McKinley St.	1910	309	22637	58443	NPS
Garage	McKinley St.	1920	592	101950	58434	Private
Storage Shed	McKinley St.	1920	590	55814	58431	Private
Garage	McKinley St.	1930	593	55819	58603	Private
Residence: (Alice Kamaka)	McKinley St.	1932	155	59962	58451	DOH
Residence: Henry Nalaielua	McKinley St.	1932	157	59964	58458	DOH
Residence: Bernard Punikaia	McKinley St.	1933	154	59961	58439	NPS
Residence: (Nicky Ramos)	McKinley St.	1937	151	59959	58429	NPS
Residence: (Bernard Punikaia)	McKinley St.	1938	152	59960	58435	DOH
Guest House (Ramos)	McKinley St.	1949	591	573913	58432	Private
Residence: Lourdes Taghoy	McKinley St.	1956	153-56	55769	58437	DOH
Residence: Lucy Kaona	McKinley St.	1956	156-56	55810	58454	DOH
Storage Shed	McKinley St.	1956	602	573917	58600	Private
Carport (Replaced Garage #603)	McKinley St.	1969	721	NH	107978	Private

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Garage: (Moved on-site)	McKinley St.	1982	620	573919	58427	Private
Kato Workshop	McVeigh Home	1920	508M	55710	58353	Private
Storage Shed	McVeigh Home	1920	507M	55712	58347	Private
Dormitory	McVeigh Home	1929	28M	21056	58325	NPS
Recreation Hall	McVeigh Home	1929	23M	21054	58320	DOH
Apartments (4)	McVeigh Home	1929	12M	21053	58309	DOH
Residence: (Henry Nalaielua)	McVeigh Home	1930	30M	56549	58327	DOH
Wash House	McVeigh Home	1930	33aM	55717	58330	Private
Shed (near Wash House)	McVeigh Home	1930	33bM	56552	99553	Private
Storage Shed	McVeigh Home	1930	502M	331233	58338	Private
Residence: (Ed Kato Studio)	McVeigh Home	1931	11M	56501	58308	NPS
Boiler Room	McVeigh Home	1931	22M	56510	58319	DOH
Pool Hall	McVeigh Home	1932	24M	21055	58321	NPS
Residence: (Perfecto Leabata)	McVeigh Home	1932	16M	56546	58314	NPS
Residence: (William Kaakimaka)	McVeigh Home	1932	25M	56548	58322	NPS
Residence: (Brede)	McVeigh Home	1932	14M	56545	58311	NPS

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Residence: Eliza- beth Kahihikolo	McVeigh Home	1932	15M	56506	58312	DOH
Card Room: (Sam Kahikina)	McVeigh Home	1932	27M	56509	58324	NPS
Residence: (G and P Chow)	McVeigh Home	1933	2M	a2	58296	NPS
Residence: (Kahikina)	McVeigh Home	1933	5M	56503	58303	DOH
Residence: (Edward Kato)	McVeigh Home	1933	9M	56543	58306	NPS
Residence: Edwin Lelepali	McVeigh Home	1933	8M	56542	58305	DOH
Residence: Nancy and James Brede	McVeigh Home	1933	10M	56544	58307	DOH
Residence: Ger- trude Kaauwai	McVeigh Home	1933	20M	56547	58318	DOH
Residence: (Kanaapu)	McVeigh Home	1933	6M	56541	58304	DOH
Residence: (Mahie McPherson)	McVeigh Home	1933	1M	56508	58294	DOH
Residence:	McVeigh Home	1933	13M	56507	58310	DOH
Garage	McVeigh Home	1933	3M	56504	58299	DOH
Residence: Daniel Hashimoto (Theo- dore Gaspar)	McVeigh Home	1934	33M	56551	58329	DOH
Residence: (D. Hashimoto)	McVeigh Home	1934	32M	56550	58328	DOH
Garage	McVeigh Home	1934	35M	56554	58334	DOH
Laundry/Storage Room	McVeigh Home	1934	18M	55713	58316	NPS

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Residence: (Nahoopii)	McVeigh Home	1936	34M	56553	58331	DOH
Garage	McVeigh Home	1959	4aM	55711	58302	Private
Carport Storage (Behind #20M—Gertrude)	McVeigh Home	1969	74M	NH	99289	Private
Shed (Near #25M)	McVeigh Home	1969	73M	NH	99288	NPS
Storage Shed	McVeigh Home	1969	505M	331178	58344	Private
Carport (Near #25M)	McVeigh Home	1970	72M	NH	99287	NPS
Hothouse	Puahi St.	1930	521	55642	58196	Private
Residence: (Rachel and Manuel Souza)	Puahi St.	1931	61	59955	57586	DOH
Residence: (Kenso Seki)	Puahi St.	1931	281	22632	58186	NPS
Rea’s Bar: aka Elaine’s and Fuesaina’s	Puahi St.	1939	62	59956	57587	Private
Rea Tavern						
Storage: aka Rea’s Store	Puahi St.	1939	298a	59985	57600	Private
Garage	Puahi St.	1940	515	55643	58190	Private
Storage Building	Puahi St.	1940	520	55641	58195	Private
Slaughterhouse/ Restrooms	Puahi St.	1953	258	59996	58688	DOH
Slaughterhouse	Puahi St.	1953	630	59997	58689	DOH
Residence: Olivia Breitha	Puahi St.	1962	101-62	55639	58184	DOH

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Residence: Kath- erine Costales	Puahi St.	1964	103-64	55640	59208	DOH
Library	Puahi St.	1965	296	56607	57599	NPS
Rea’s Bar Restroom	Puahi St.	1980	624	342014	57621	Private
Garage: Kenso Seki	Puahi Street	1910	516	56538	57608	NPS
Outpatiient Clinic: aka Promin Build- ing—Re-use NPS Headquarters	Puahi Street	1946	7BH	22628	57582	DOH
Storage Shed	Puahi Street	1950	623	55809	57607	Private
Rock Crusher	Puahi Street (Baldwin Home)	1950	635	59998	58690	DOH
Storage Shed	School St.	1920	637	101951	57623	Private
Residence: (Maximo and Katie Cabane)	School St.	1937	119-60	22639	57593	NPS
Residence: (Harry Yamamoto)	School St.	1962	120-62	55739	58424	NPS
Residence: (Hatori)	School St.	1962	123-62	55801	58428	DOH
Hothouse	School St.	1969	636		57622	Private
Central Kitchen	Staff Row	1900	5SR	21057	58164	DOH
Garage	Staff Row	1900	629	333513	58178	Private
Asst. Residence Physician: Re-use Head Nurse Residence	Staff Row	1905/06	14SR	21060	59182	DOH

Description	Street/ Location	Date Built	Build- ing #	LCS #	FMSS #	Mgmt
Resident Physician Residence: aka Doctors House	Staff Row	1930	10SR	21059	58168	DOH
Carport	Staff Row	1930	618	329385	58174	Private
Residence: (Electrician)	Staff Row	1931	16SR	59995	58171	DOH
Residence for Single Women	Staff Row	1932	1SR	22627	58158	DOH
Laundry/ Apartment	Staff Row	1940	3SR	329371	58160	DOH
Guest Cottage: aka Vets Cottage	Staff Row	1950	1aSR	56540	58159	DOH
Carport (11SR)	Staff Row	1969	69SR	NH	99323	DOH
Carport (15SR)	Staff Row	1969	70SR	NH	99324	DOH
Carport (7SR)	Staff Row	1969	68SR	NH	99327	DOH
Carport (4SR)	Staff Row	1970	67SR	NH	99322	DOH
Storage Shed	Staff Row	1974	71SR*	NH	99325	DOH
Freezer Shelter	Staff Row	1975	66SR*	NH	99321	DOH
Dentist’s Residence	Staff Street	1892	8SR	21058	58167	NPS
Well Pump House	Water Well Rd.	1985	724	NH	231108	NPS
Well Pump House Fuel Storage	Water Well Rd.	1993	724a	NH	238969	NPS

Appendix G: Instructions for Visitors

Sponsor Responsibilities and Penalties

Visitor permits must be made three (3) State Office business days or more in advance scheduled visit.

Exceptions to three (3) business day rule is for emergency purposes only as determined by the Administrator.

All guests/visitors must be registered with their full name on the form provided and each form shall be complete with sponsor signature before approval.

All guests/visitors must have identification that includes date of birth and current address.

Visitor passes must be picked up on a state office business day prior to the scheduled visit if the state office is closed on the visitor arrival date.

Visitor guest list must be brought to the Administration Office the first business day after the visitor’s arrival. Visitor passes/tags must be returned the first business day after departure.

All visitor passes/tags must be returned to Administration Office for verification.

Failure to return visitor passes/tags in a timely manner will result in revocation of invitation privileges as follows:

- First failure: will not be allowed to sponsor any guests for 3 months
- Second failure: will not be allowed to sponsor any guests for 6 months
- Third failure: will not be allowed to sponsor any guests for 12-24 months

Additional sanctions may be made at the discretion of the Administrator

Sponsor(s) are responsible for all actions of visitors/guests, including infractions of Kalaupapa rules and regulations.

Rules and Regulations Governing All Visitors to Kalaupapa Settlement

If you are going to be driving during your visit in Kalaupapa, we ask you to use extra caution since many of our residents have visual and hearing impairments. On occasion deer and wild boar are in the settlement. Please be careful and cautious!

SPONSORS:
Only residents of Kalaupapa may sponsor guests.

GUESTS:
All visitors must present some type of photo identification upon sign-in at the state Administration Office (i.e. driver’s license, state ID, etc.). ALL IDs MUST HAVE BIRTH DATE ON THEM.

REGISTRATION:
Registration at the State of Hawai‘i Administration Office is required of ALL guests. Guests are required to sign the Department of Health permit to enter the settlement. Anyone visiting the settlement without a sponsor and signed permit is TRESPASSING and subject to legal action.

MAXIMUM STAY:
The maximum stay for each guest is limited to seven (7) days and six (6) nights at the Visitors’ Quarters. NO VISITOR is allowed to visit Kalaupapa Settlement more than thirteen (13) days in a calendar quarter.

HOSTS/SPONSORS:
Unescorted walking or riding beyond the settlement proper is strictly prohibited. Guests must be in the company of their sponsor at all times when outside the airport terminal area and the cattle guards beginning at the road to Kalawao (where the pavement ends and dirt road begins), beyond the cemetery sites near ocean view, and beyond the bridge leading to the trail. ***Visitors are permitted to travel between the bridge cattle guard and trailhead for access to sign-in at the Administration Office, departure from settlement property, or to meet sponsors.

VISITATION OF MINORS:
Children under the age of sixteen (16) are not permitted in Kalaupapa Settlement.

PHOTOGRAPHS:
Photographs of patients may not be taken without their written permission. This includes their property. Permits may be picked up at the State of Hawai‘i Administration Office.

HOSPITAL:
THERE ARE NO MEDICAL SERVICES AVAILABLE TO VISITORS AT KALAUPAPA.

RESTROOMS:
Public restrooms are located at the Airport Terminal, Administration Building, Lion’s Club “Ocean View Pavilion,” Kalaupapa Pier, the National Park Service’s Kalawao Pavilion, and Fuesaina’s Bar.

VISITORS’ QUARTERS:
Check-in 2:00 pm; check-out 12:00 noon

FOOD:
There are no restaurants in Kalaupapa so it is necessary for guests to provide their own food, beverages, and sundry items. Beer, wine, water, juice, ice cream, cigarettes, film, single-use cameras, and T-shirts are available at Fuesaina’s Bar. Hours are Monday–Saturday, 9–11am (no alcohol served), and 4–8pm Monday–Wednesday and Saturday. Closed Sunday.

All visitor trash/garbage must be packed out when visitors leave Kalaupapa.

Visitors may purchase a soda, candy, or bag of chips per day at the Kalaupapa Store, but shopping for groceries is PROHIBITED. Sponsors must provide for their visitors. The Kalaupapa State Main Kitchen is for patients, state workers, and approved contractors only.

LIBRARY:
The library is open to the public. Please have your sponsor check with the Administration Office if you wish to check out any books or movies. Only patients may remove materials from the library.

SPEED LIMITS:
1) 15 mph: Hospital Zone and Unit Home Drives
2) 25 mph within the settlement
3) 35 mph outside the settlement

HUNTING:
Visitors are NOT PERMITTED to hunt. Visitors are NOT PERMITTED to carry firearms. Visitors may accompany approved resident hunters after registering with the Administration Office.

CAMPING:
Camping is NOT ALLOWED anywhere.

USE OF NATURAL RESOURCES:
Visitors of patient residents, visitors of employees, and short-term volunteers may only fish with poles. NO NET fishing by any guests will be allowed. State and federal fish and game rules must be respected. Visitors MAY NOT take any marine life on behalf of patients, employee residents, or resident volunteers, or exercise their privileges. Any violations of the Kalaupapa fishing policy or fish and game rules will result in the visitor being declared unwelcome and banned from future visits to Kalaupapa.

No fishing equipment or the cleaning of fish in any building is allowed. Harvesting and removal of sea salt is to be under the supervision of the sponsor.

No diving tanks or scuba allowed. No surfboarding or boogie boards.

No ‘opihi picking. No pets allowed. No diving off the pier.

NO LITTERING:
Please be respectful of this Makanalua Peninsula. Do your part to maintain the pristine beauty, as a steward for the ‘aina (land) and all that lives and grows here.

ATTITUDE:
Honor and respect the history of those who once lived here and particularly those who reside here and call this special place “Home.”

NO TRESPASSING:
Trespassing onto personal property is strictly prohibited. This includes any fruit, vegetable, or flower picking.

ANY VIOLATION OF THESE RULES GOVERNING ALL VISITORS WILL RESULT IN DISCIPLINARY ACTION AND SUSPENSION OF VISITATION AND SPONSORSHIP PRIVILEGES.

Violations of the Kalaupapa fishing policy should be reported to the Kalaupapa settlement administrator immediately following the alleged violation. Violations of the Kalaupapa fishing policy may be reported up to three (3) months after the alleged date of the incident. Any violation after that time will not be investigated.

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